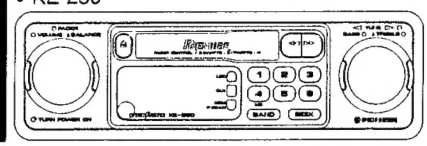
3148

PIONEER
The Art of Entertainment

Service Manual

• KE-250



ORDER NO.
CRT1332

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KE-250 US

KE-3033 UC, XSG/UC

KE-3838 UC, ES, XSG/UC, XML/UC

Note:
• See the separate manual CX-197 (CRT1328) for the cassette mechanism description.

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

ES DEC. 1990 Printed in Japan

3148

SAFETY INFORMATION (UC, US MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

SPECIFICATIONS

General

Power source ..... 14.4 V DC (10.8 – 15.6 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 2.5 A
Dimensions (chassis) ..... 178(W) × 50(H) × 135(D) mm
[7(W) × 2(H) × 5-3/8(D) in.]
(nose) ..... 104(W) × 48(H) × 34(D) mm
[4-1/8(W) × 1-7/8(H) × 1-3/8(D) in.]
Shaft interval ..... 147 mm (5-3/4 in.)
Weight ..... 1.3 kg (2.9 lbs.)

Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 8.5 W × 2/7 W × 4 (EIAJ)
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout output level/Impedance ..... 500 mV/100 Ω
Tone controls (bass) ..... ±10 dB (100 Hz)
(treble) ..... ±10 dB (10 kHz)

Tape player

Tape ..... Compact cassette tape (C-30 – C-90)
Tape speed ..... 4.76 cm/sec. (+ 0.14 cm/sec. – 0.05 cm/sec.)
Fast forward/rewind time ..... Approx. 100 sec. for C-60
Wow & flutter ..... 0.13% (WRMS)
Frequency response
(KE-250) ..... 50 – 14,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio
(KE-250) ..... 52 dB (IHF-A network)

FM tuner

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA) (±400 kHz)
Three-signal intermodulation (desire signal level)
(KE-250) ..... 55 dBf
(two undesire signal level: 110 dBf)

AM tuner

Frequency range ..... 530 – 1,710 kHz
Usable sensitivity ..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

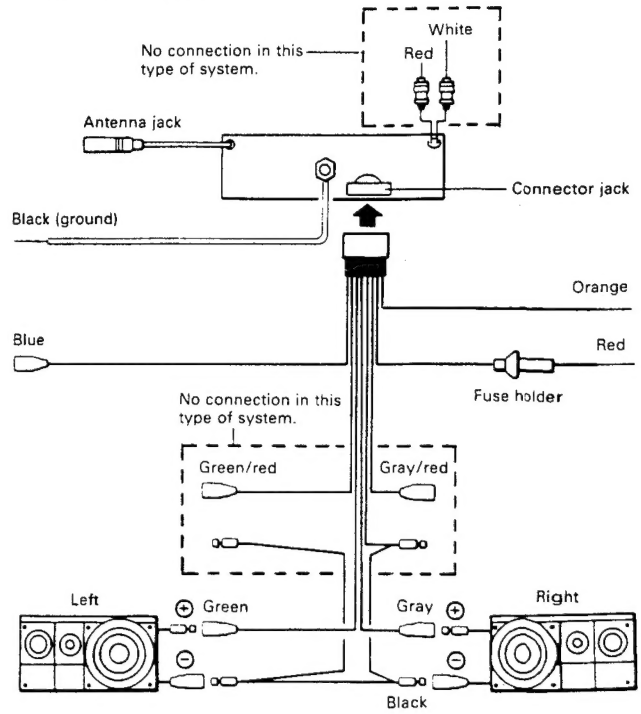
1. CONNECTIONS

Note:

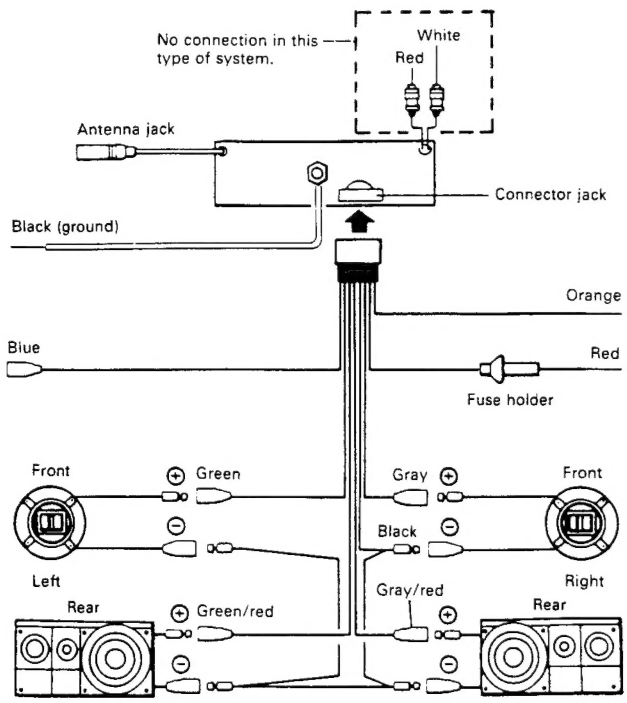
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace the fuse only with the type stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- Refer to the power amp owner's manual when connecting a power amp (sold separately) to the RCA pin jack.
- When the power amp is being linked with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.

Blue	If this unit is combined with a power amp, connect its blue lead to the blue lead (system control terminal) of the power amp. If combined with an auto-antenna, connect its blue lead to the relay control terminal of the auto-antenna. (MAX. 300 mA, 12 V DC)
Orange	To terminal always supplied with power regardless of ignition switch position.
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Black (ground)	To vehicle (metal) body.

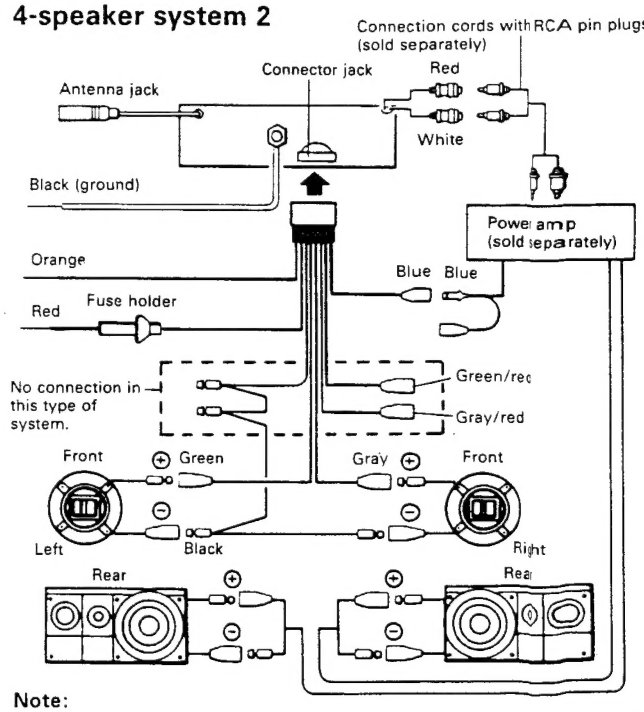
2-speaker system



4-speaker system 1



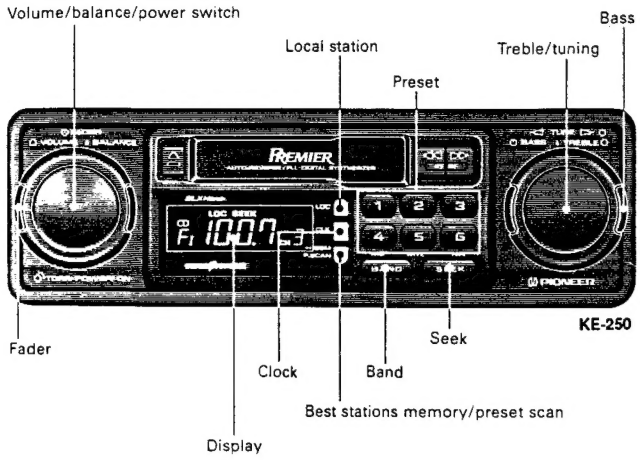
4-speaker system 2

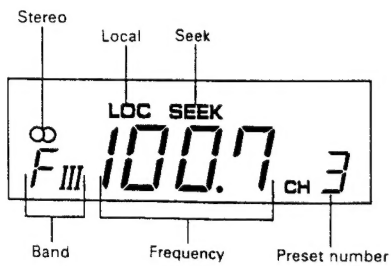


Note:

Connect to the front speakers with the green and gray leads. If you connect with the green/red and gray/red leads, this unit's fader control will not operate.

2. USING THE RADIO





• Before attempting operation...

- Set the fader control to the center position. (A click can be felt when the knob is in the center position.)

1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.

- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.

2. Press the band switch to select the band.
3. Press the seek button and the seek tuning indicator will be displayed.
4. Turn the tuning knob to the left or right to tune in the desired frequency. (Turning to the right will increase the frequency.)
5. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
6. Adjust the tone. To adjust the treble, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.

• To enter a frequency into the preset memory...

7. Hold down one of the preset buttons (1-6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
   Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six AM frequencies can be entered.

• Clock Switch

Each press causes the display to switch between clock and frequency.

• Best Stations Memory Button

Automatically tunes strong frequencies and assigns them to preset buttons 1 through 6 for one-touch automatic tuning. The best stations memory function is activated by pressing this button for approximately 2 seconds. The best stations memory function is indicated by ——— flashing on the display, and this function can be canceled by pressing the band switch. The frequency display returns once the best stations memory function is complete. The frequency displayed at this time is of the strongest station assigned to preset button 1 by the best stations memory function.

- 6 best (strongest) frequencies are memorized in the 6 preset buttons in the order of their strength, the strongest one being assigned to preset button 1.
- The frequencies previously assigned to the preset buttons are retained when 6 frequencies cannot be located.
- The best stations memory is in operation while ——— is flashing on the display.

• Local Station Switch

Pressing this switch increases the seek threshold level so that only relatively strong stations can be tuned in (local indicator will illuminate on the display). Local seek threshold level can be selected among four levels for FM and two levels for AM.

Holding this switch down for approximately 2 seconds and then turning the tuning knob to the right changes the display from L-1, L-2, L-3 to L-4. Turning the tuning knob to the left changes the display from L-4, L-3, L-2 to L-1. (L-1 and L-2 for AM.) The bigger the number, the higher the seek threshold becomes and only relatively strong stations can be tuned in.

• Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the center position. (A click can be felt when the knob is in the center position.)

Important

A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

3. BLOCK DIAGRAM

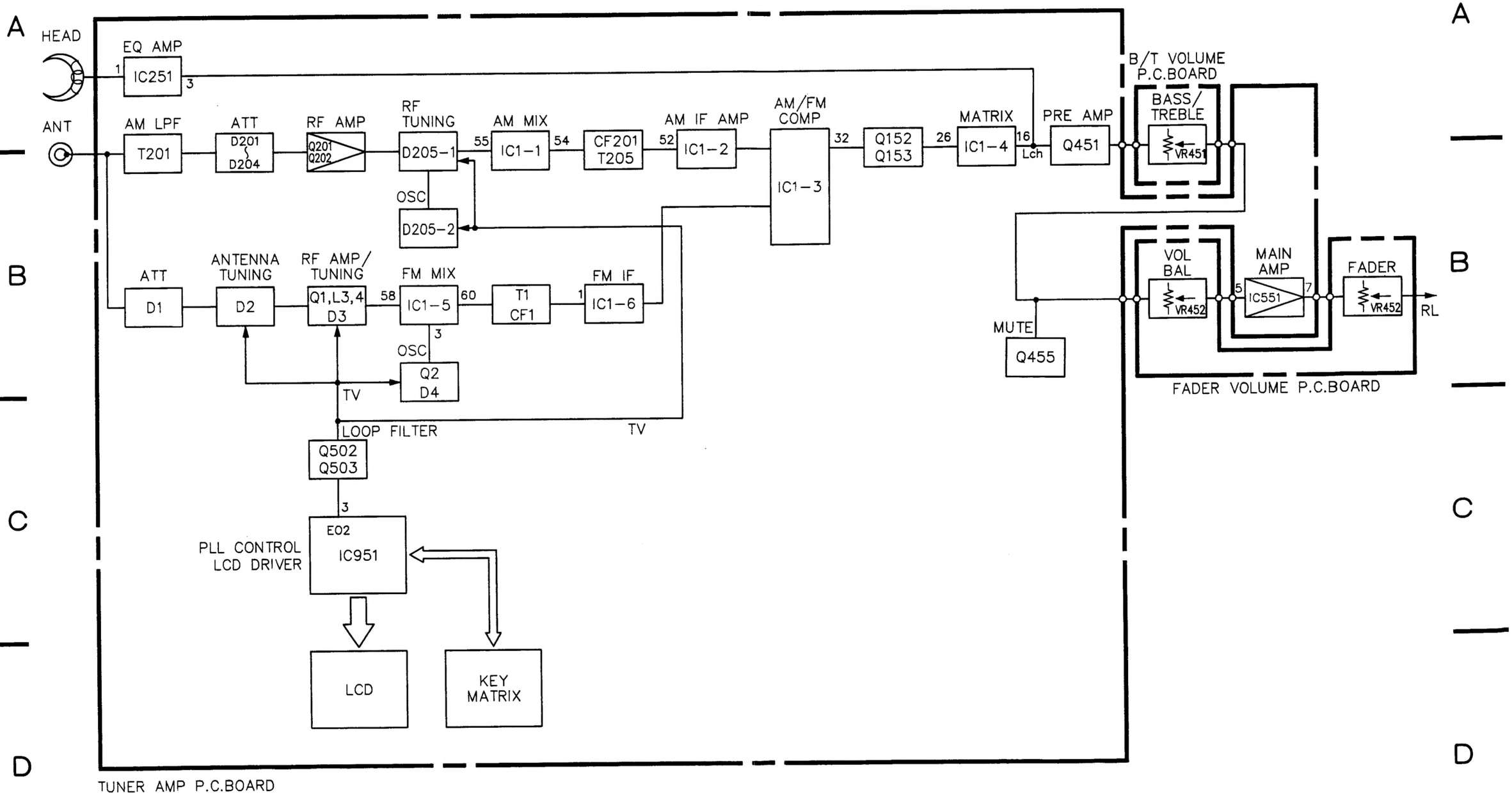


Fig. 1

4. DISASSEMBLY

● Removing the Case
1. Remove the two screws.
2. Insert and turn a screwdriver at locations indicated by arrows A to remove the case.
3. Raise the case to remove.

● Removing the Grille Assy
1. Press the tabs at locations indicated by arrows B, and then pull grille assy.

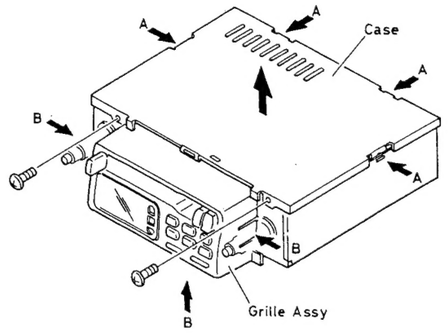


Fig. 2

● Removing the Cassette Mechanism Assy Section
1. Remove the four screws.
2. Disconnect the connector.
3. Remove the cassette mechanism assy section.

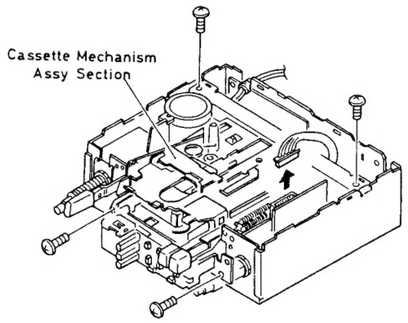


Fig. 3

● Removing the Tuner Amp P.C.Board
1. Remove the five screws and two nuts.
2. Unbend the tab indicated by arrow until straight.
3. Raise up on tuner amp P.C.board to remove it from the chassis.

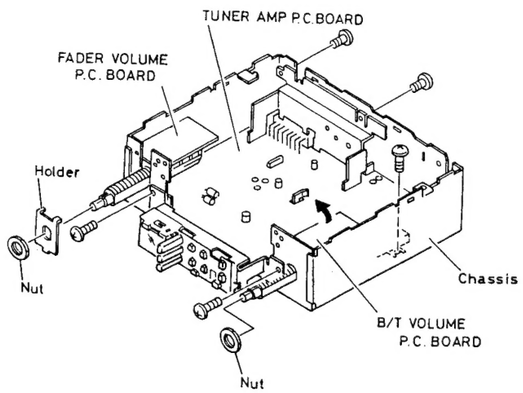


Fig. 4

5. ADJUSTMENT

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

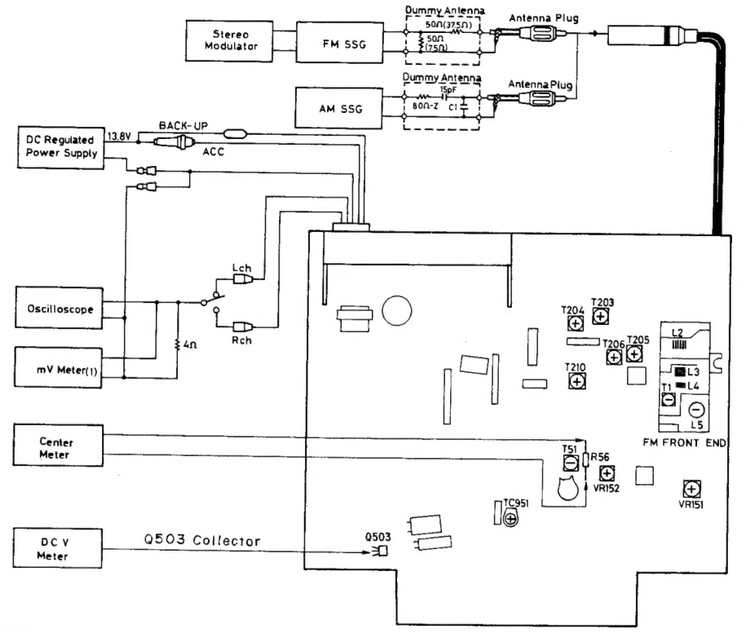


Fig. 5

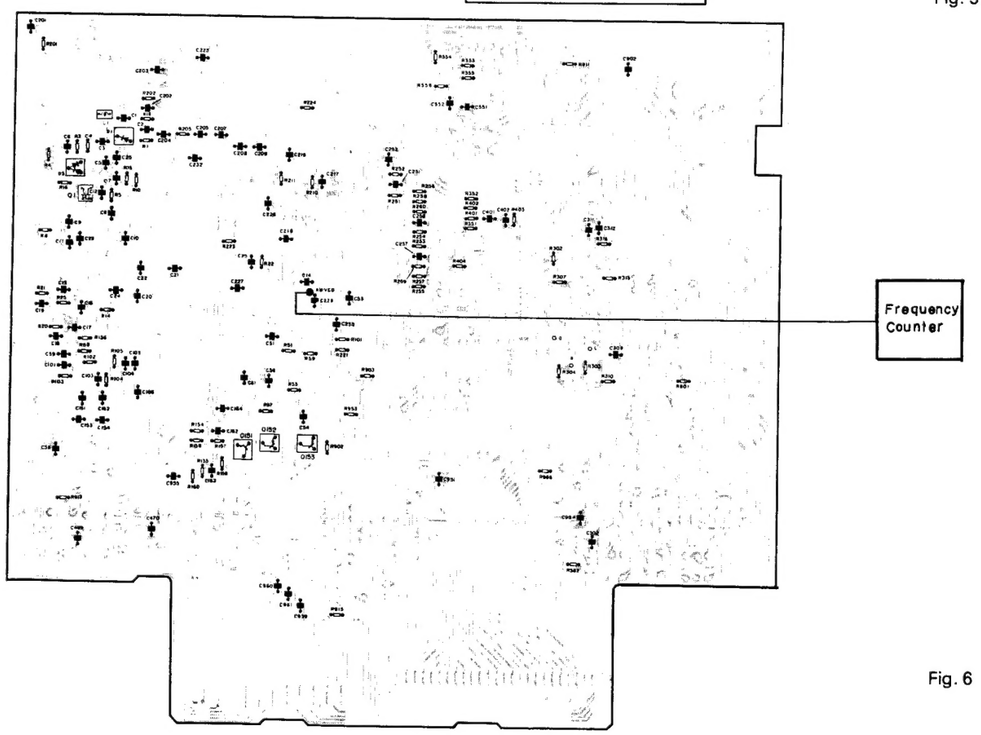


Fig. 6

FM ADJUSTMENT

※1 Stereo MOD.: Pilot=10%
※2 Stereo MOD.: 1kHz, L+R=90%, Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	107.9 (UC) 108.0 (ES)	L5	DC V Meter: 7.0V
Tracking	1	98.1	15	98.1	L2, L4	mV Meter (1): Maximum
	2	98.1	15	98.1	T1	mV Meter (1): Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pilot Cancel	1	98.1※1	65	98.1	VR151	mV Meter (1): Minimum (MPX Filter: OFF)
ARC	1	98.1※2	40	98.1	VR152	mV Meter (1): Separation 5dB

AM ADJUSTMENT

※3 : ES model when tuning step at 9kHz.

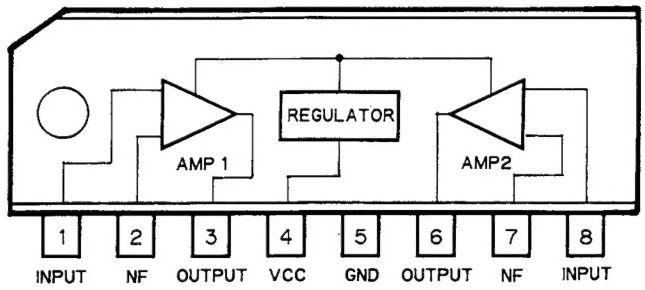
	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	530 (531)※3	T210	DC V Meter: 1.0V
Tracking	1	1,000 (999)※3	20	1,000 (999)※3	T203, 204, 205, 206	mV Meter (1): Maximum

CLOCK ADJUSTMENT

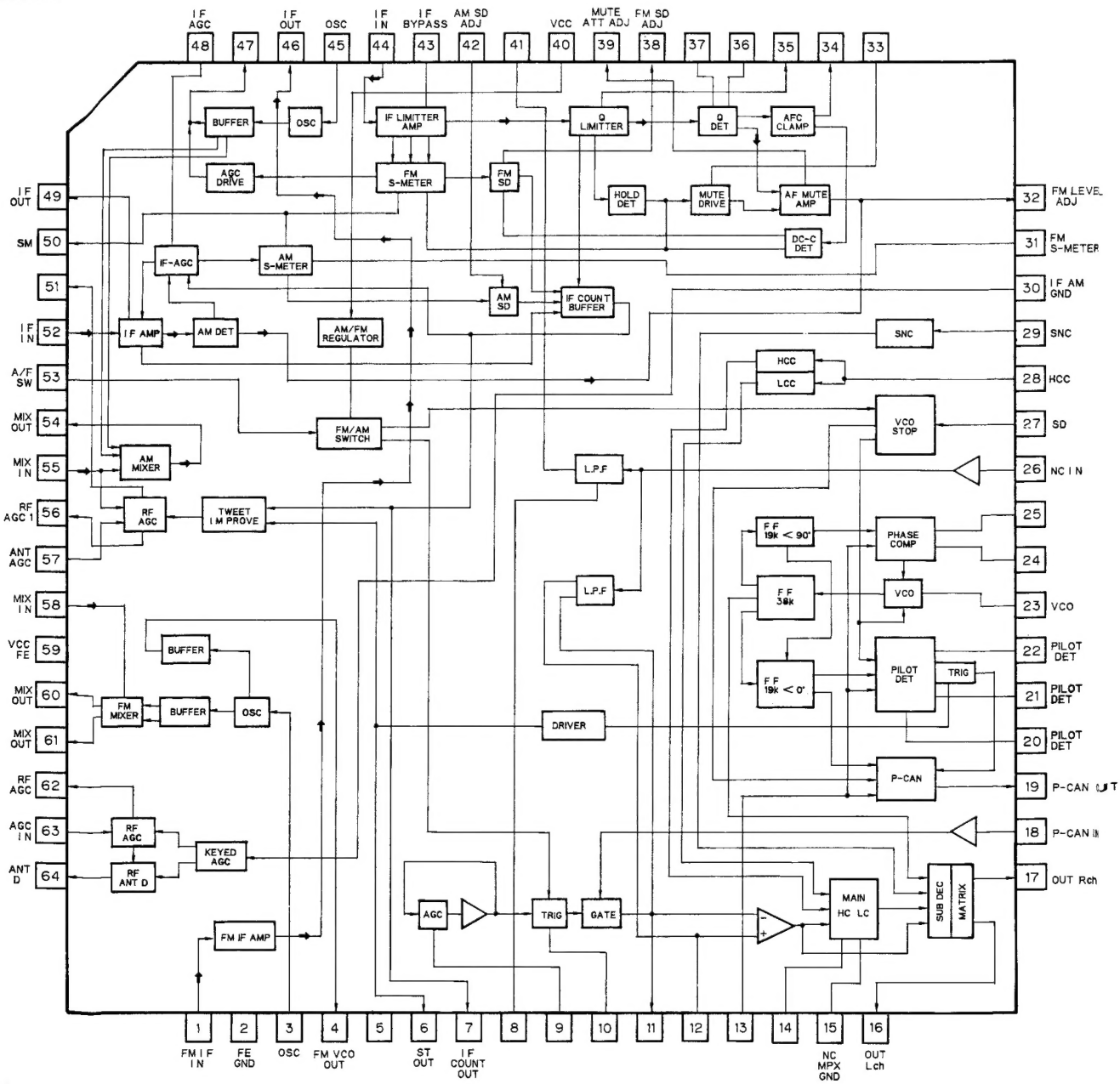
	No.	Band	Displayed Frequency (kHz)	Adjusting Point	Adjustment Method
	1	AM	1,710 (UC)	TC951	Frequency Counter: 2160kHz±40Hz
			1,602 (ES)	TC951	Frequency Counter: 2052kHz±40Hz

• ICs

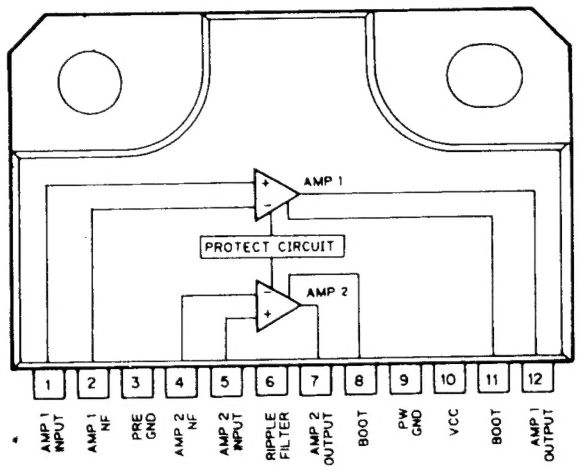
LA3161P



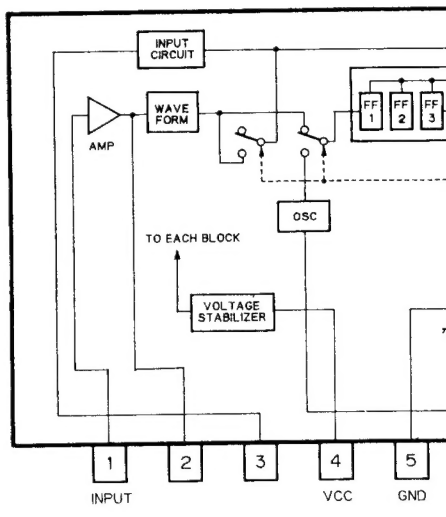
PAC001A



TA7280P



AN6263N



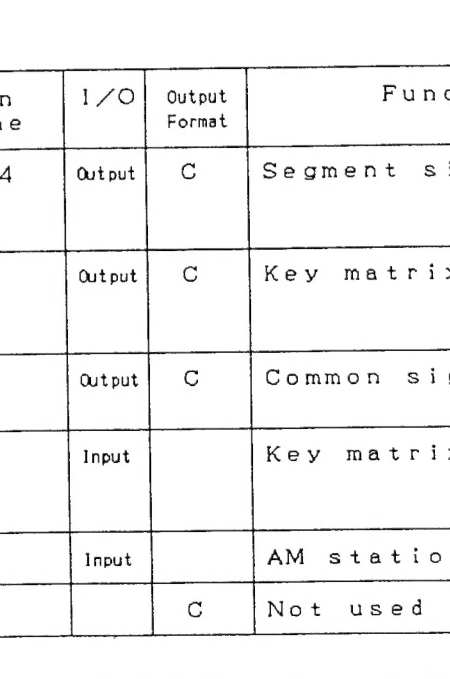
• **Pin Function (PD4275)**

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2 3	EO1 EO2	Output	C(3)	PLL error output pins
4 8	VDD1 VDD2			Device power supply pin
5	AMVCO	Input		AM local oscillator signal input pin
6	FMVCO	Input		FM local oscillator signal input pin
7	CE	Input		Chip enable input pin
9	FM/$\overline{\text{AM}}$	Output	C	FM/AM band select pin "H":FM "L":AM
10	LW/$\overline{\text{MW}}$	Output	C	Loop filter switching output pin "H":LW
11	MUTE	Output	C	Mute output pin "H":ON
12	DK	INPUT		SK signal input pin
13	$\overline{\text{SK}}$	INPUT		DK signal input pin
14	$\overline{\text{ST}}$	Input		Stereo broadcast detection signal input pin "L":Stereo indicator is displayed
15	TAPE	INPUT		Tape power ON/OFF input pin "H":ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H":During broadcast reception
18	F/$\overline{\text{R}}$	Input		Tape motion signal input pin "H":Forward
19	$\overline{\text{LOUD}}$	Input		Loudness ON/OFF signal input pin "L":ON
20	NR	Output	C	Dolby NR ON/OFF output pin "H":ON
21	$\overline{\text{MTL}}$	Output	C	Tape METAL ON/OFF output pin "L":ON
22	$\overline{\text{MSOUT}}$	Output	C	Tape MS ON/OFF output pin "L":ON
23	SEEK	Output	C	"H" level:SEEK, BSM, BSA and PSCAN
24 25	XO XI	Output Input	C	Quartz oscillator terminal
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin "L":DX SEEK(P. SCAN) "H":LOC SEEK
29	DKOUT	Output	C	Control by DK(terminal #12) input signal "H":DK input signal is detected as 125Hz
30	NC			Not used

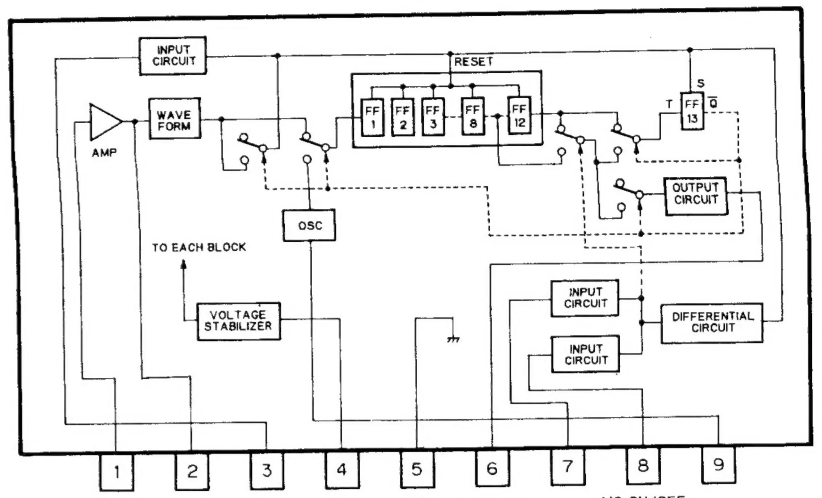
Pin No.	Pin Name	I/O	Output Format	Func
31 | 55	LCD24 | LCD0	Output	C	Segment s
48 | 55	KS7 | KS0	Output	C	Key matri
56 57	COM1 COM2	Output	C	Common si
59 | 62	K3 | K0	Input		Key matri
63	SL	Input		AM statio
64	NC		C	Not used

Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

*PD4275



nd Operation
pins
ply pin
tor signal input pin
tor signal input pin
t pin
t pin "H" : FM "L" : AM
ching output pin "H" : LW
"H" : ON
pin
pin
t detection signal input pin cator is displayed
FF input pin "H" : ON
put pin
: During broadcast reception
nal input pin "H" : Forward
signal input pin "L" : ON
output pin "H" : ON
FF output pin "L" : ON
output pin "L" : ON
SM, BSA and PSCAN
or terminal
n
y switching pin
CAN) "H" : LOC SEEK
erminal #12) input signal gnal is detected as 125Hz

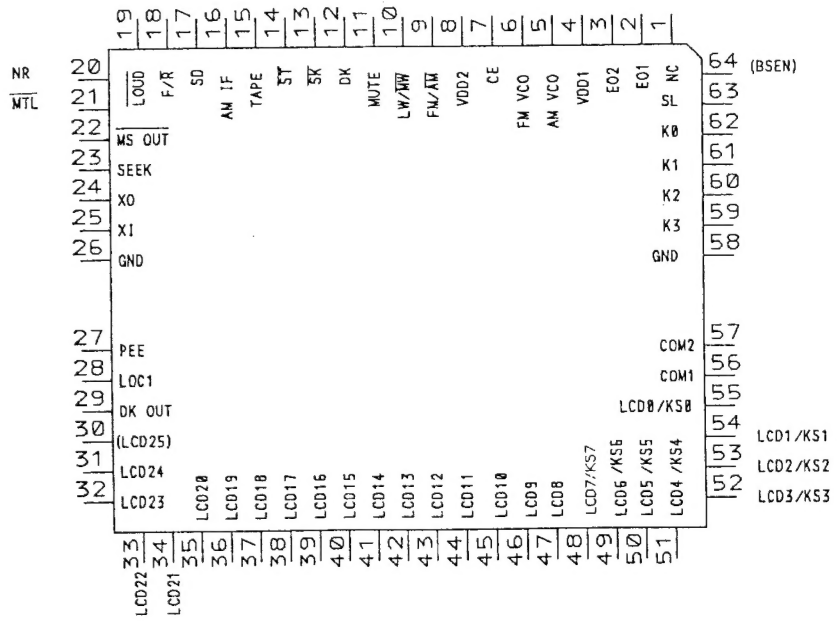


Pin No.	Pin Name	I/O	Output Format	Function and Operation
31 | 55	LCD24 | LCD0	Output	C	Segment signal output pins to LCD
48 | 55	KS7 | KS0	Output	C	Key matrix strobe output pins
56 57	COM1 COM2	Output	C	Common signal output pins to LCD
59 | 62	K3 | K0	Input		Key matrix return input pins
63	SL	Input		AM station level anarog input pin
64	NC		C	Not used

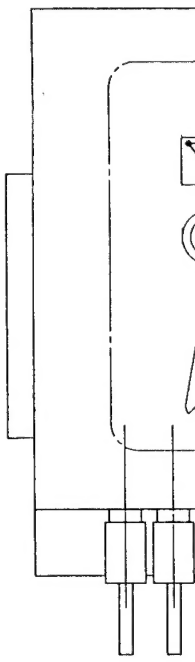
Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

*IC's marked by * are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

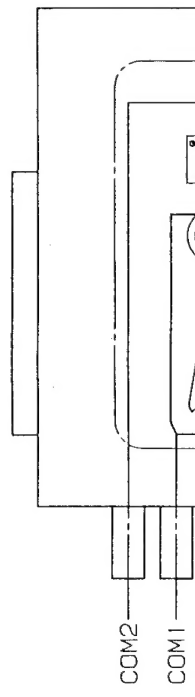
*PD4275

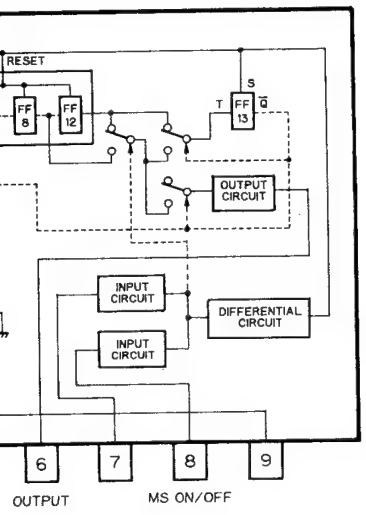


• LCD (CAW1
SEGMENT



COMMON





ction and Operation
ignal output pins to LCD
x strobe output pins
gnal output pins to LCD
x return input pins
n level anarog input pin

*IC's marked by * are MOS type.*
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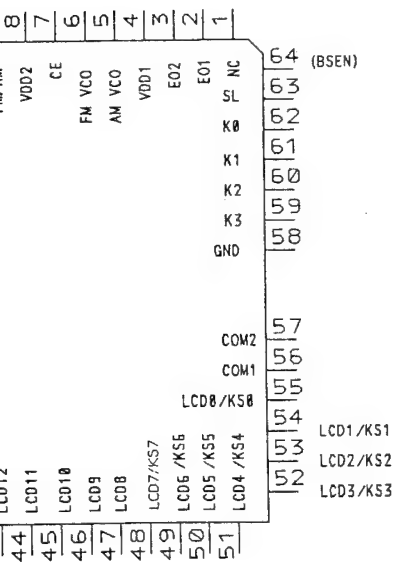
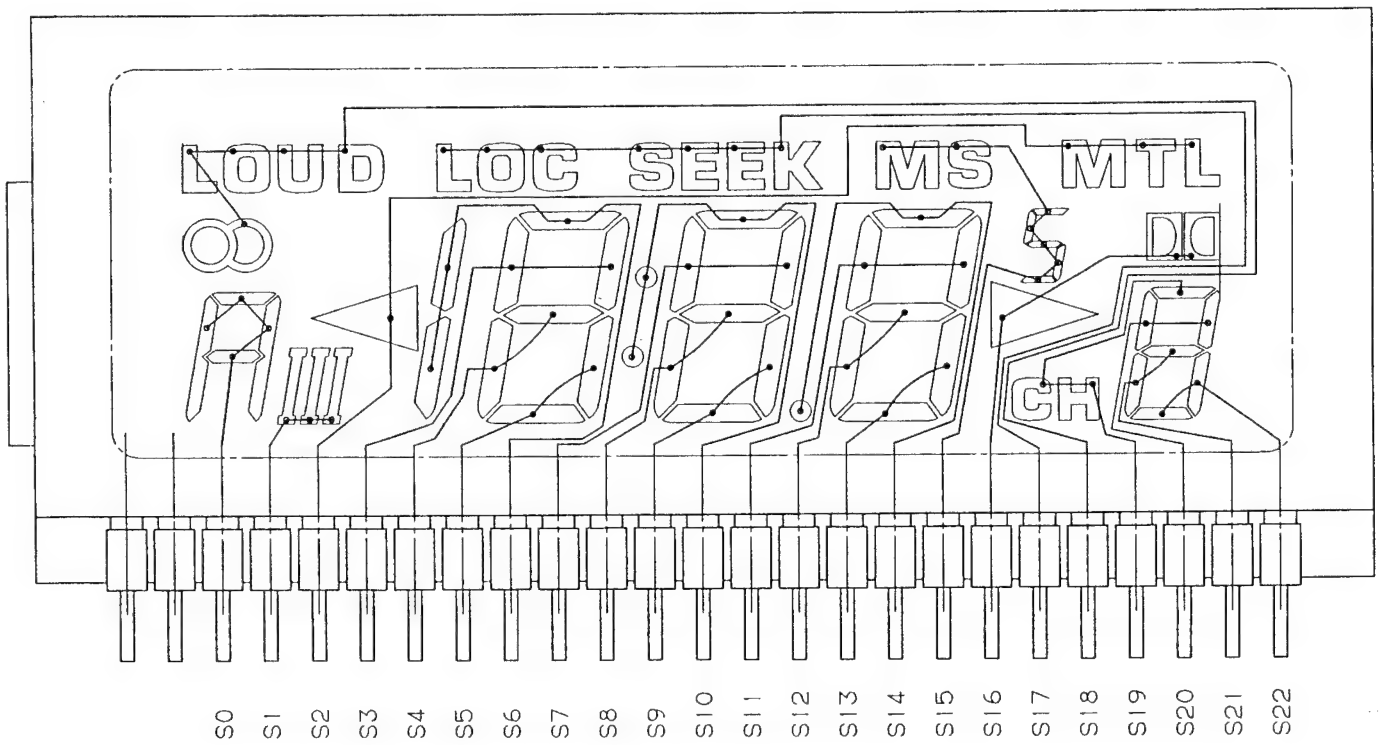
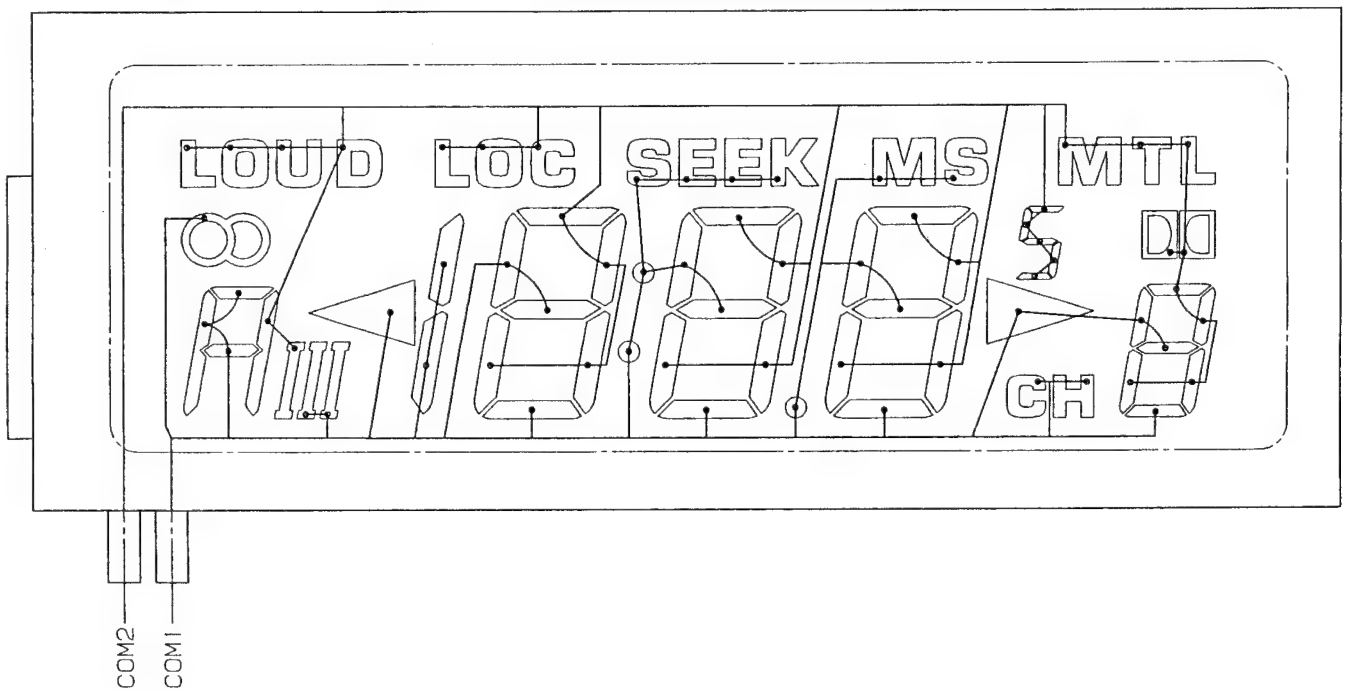


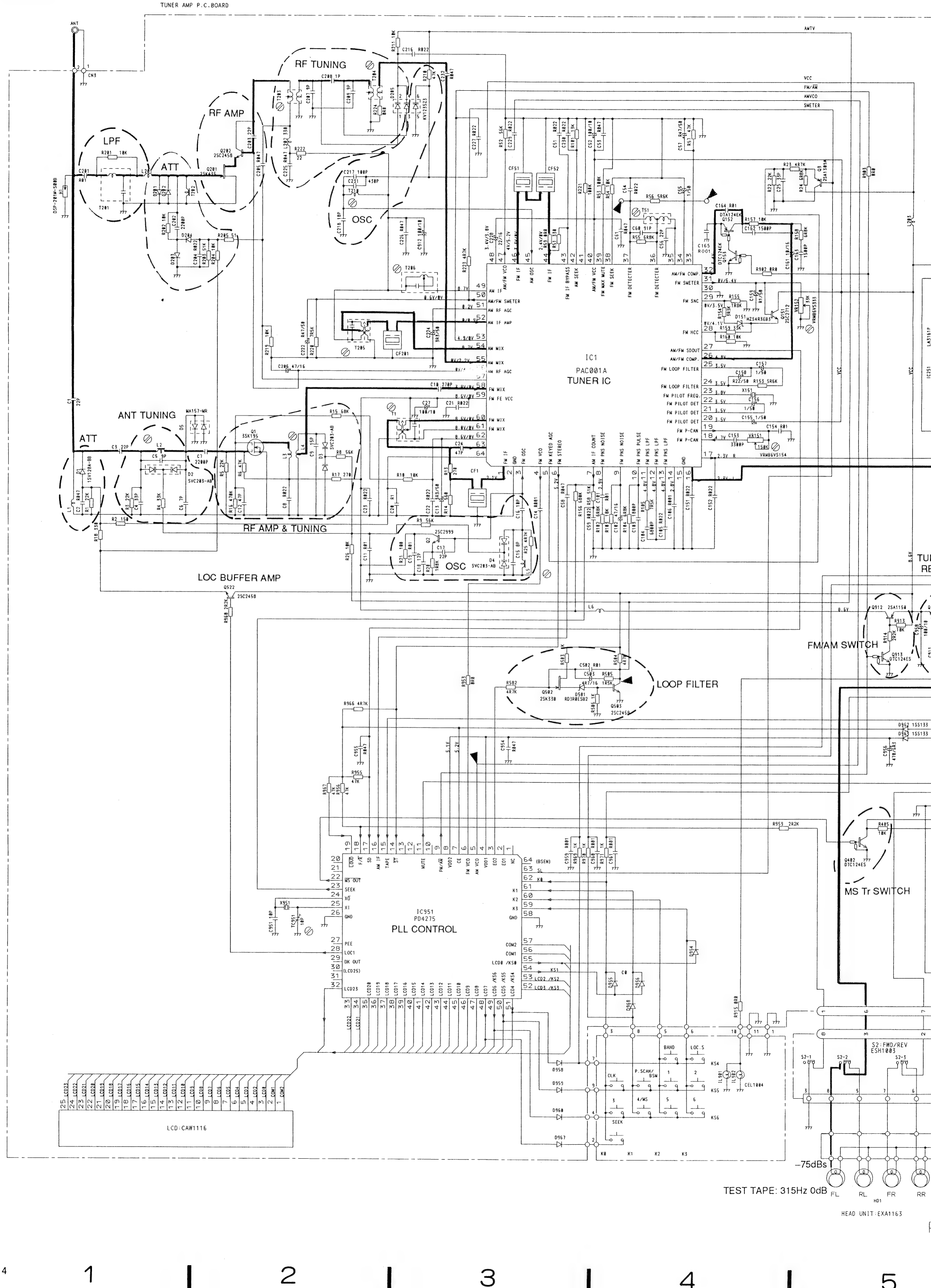
• LCD (CAW1116)
SEGMENT



COMMON



6. SCHEMATIC CIRCUIT DIAGRAM (KE-250)



E-250)

NOTE :

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal poin
and capacito
are expresse
2.2→2R2
0.022→R022

IC1
PAC001A
TUNER IC

IC951
PD4275
PLL CONTROL

OSC

LOOP FILTER

FM/AM SWITCH

TUNER/AUDIO REGULATOR

EQ AMP

PRE AMP

VR451:CCS1178
VR452:CCS1177

B/T VOLUME P.C.BOARD

TAPE REGULATOR

MS Tr SWITCH

MS

BASS

TREBLE

S451:TUN

MUT

S2:FWD/REV
ESH1003

S1:MUTE
ESN1005

S4:MUTE
CSN1005

S3:TAPE/TUN
ESH1004

MOTOR UNIT
EXA1162

SOLENOID
EXP1008

HEAD UNIT:EXA1163

TEST TAPE: 315Hz 0dB

–75dBs

P.C.BOARD (A)

P.C.BOARD (B)

D959 and D962 are 1S1555.
Undesignated diodes are 1SS133.

SWITCHES:

P.C.BOARD (A)
S2:FWD/REV SWITCH ..... FWD-REV
P.C.BOARD (B)
S3:TAPE/TUN SWITCH ..... TAPE-TUNER
S4:MUTE SWITCH ..... ON-OFF
MISCELLANEOUS
S1:MUTE SWITCH ..... ON-OFF

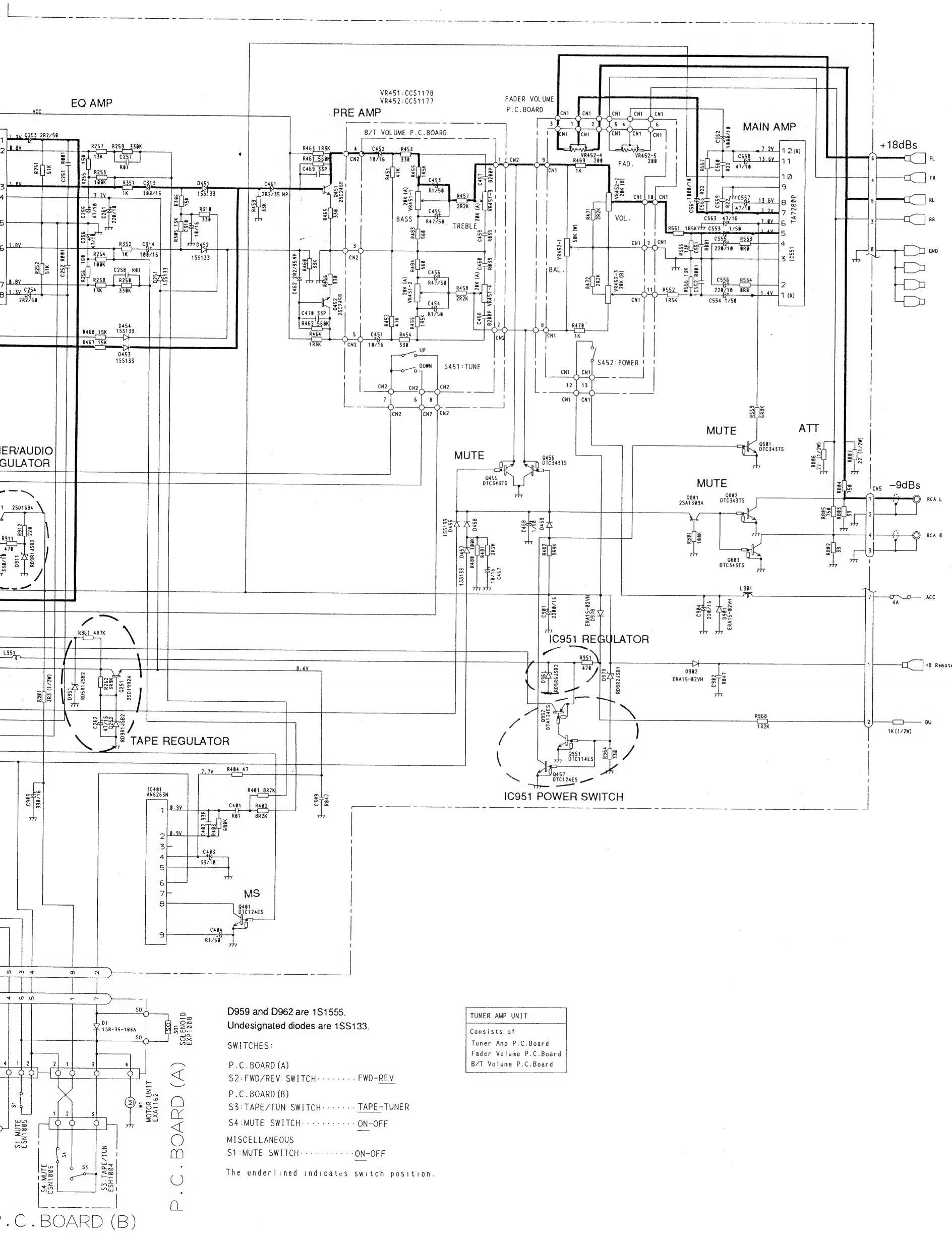
The underlined indicates switch position.

NOTE :

⊏⊐ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊣⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



D959 and D962 are 1S1555.
Undesignated diodes are 1SS133.

SWITCHES:

P.C.BOARD (A)
S2:FWD/REV SWITCH ..... FWD-REV

P.C.BOARD (B)
S3:TAPE/TUN SWITCH ..... TAPE-TUNER
S4:MUTE SWITCH ..... ON-OFF

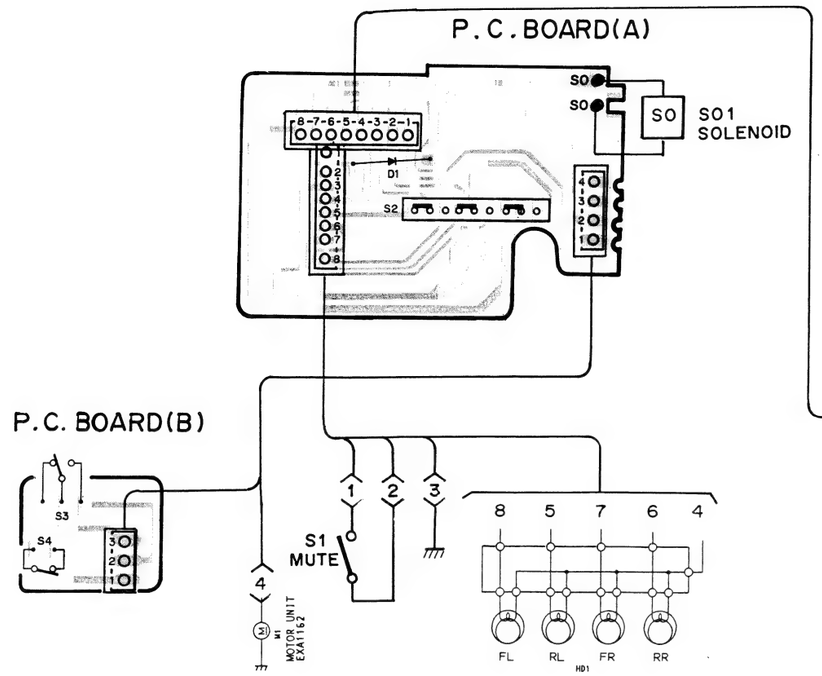
MISCELLANEOUS
S1:MUTE SWITCH ..... ON-OFF

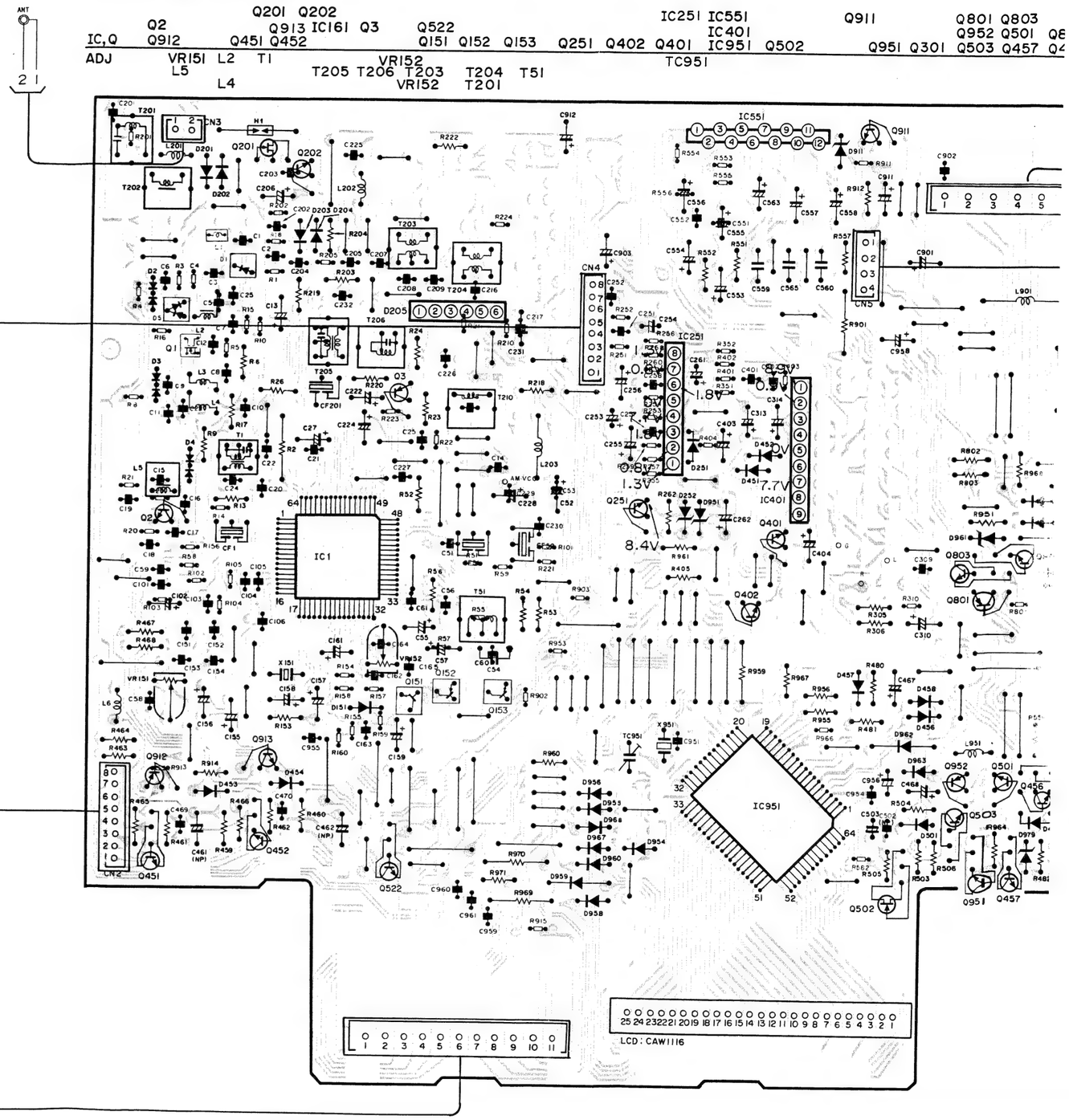
The underlined indicates switch position.

TUNER AMP UNIT
Consists of
Tuner Amp P.C.Board
Fader Volume P.C.Board
B/T Volume P.C.Board

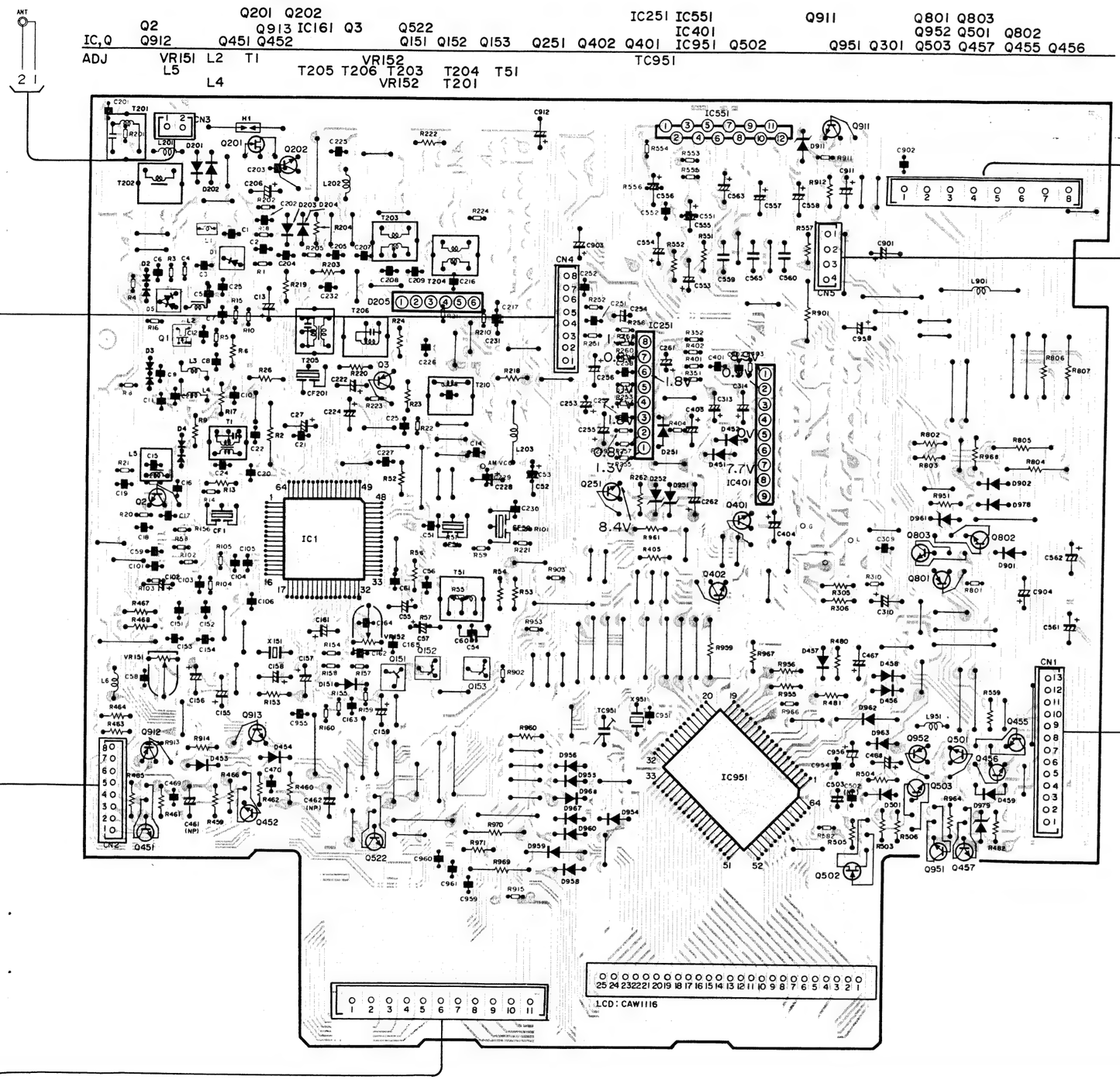
Fig. 7

7. CONNECTION DIAGRAM (KE-250)





TUNER AMP P.C. BOARD

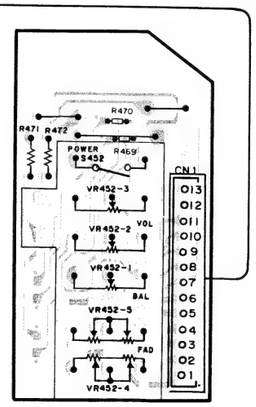


TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4	/	0	/	1.4	7.0	7.2	13.6	0	/	13.6	7.2				

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	2.1	0	/	/	5.2	/	2.9				4.8	4.8	4.8	2.8	0	2.3	2.3	4.7	/	3.5	3.5	3.5
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
IC1	3.8	3.5	3.5	4.8	/	/	0 (3.5)	0	0 (6.4)	3.4	/	/	0	/	/	/	/	/	/	/	/	2.5 (0)
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64		
	/	3.3 (0)	4 (5.2)	3.4 (3.8)	8.7	0.6 (0)	0.2	0 (0.9)	4.9 (0)	8.7	0 (2.2)	0 (4.3)	/	3.9 (0)	8.6 (0)	8.6 (0)	8.0 (0)	8.6 (0)	/	/			

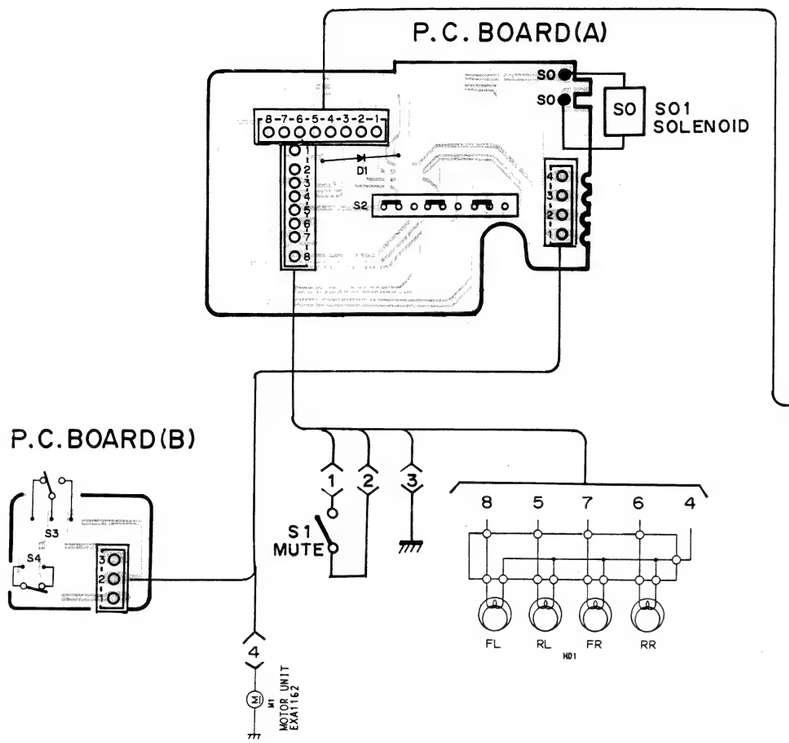
(V)

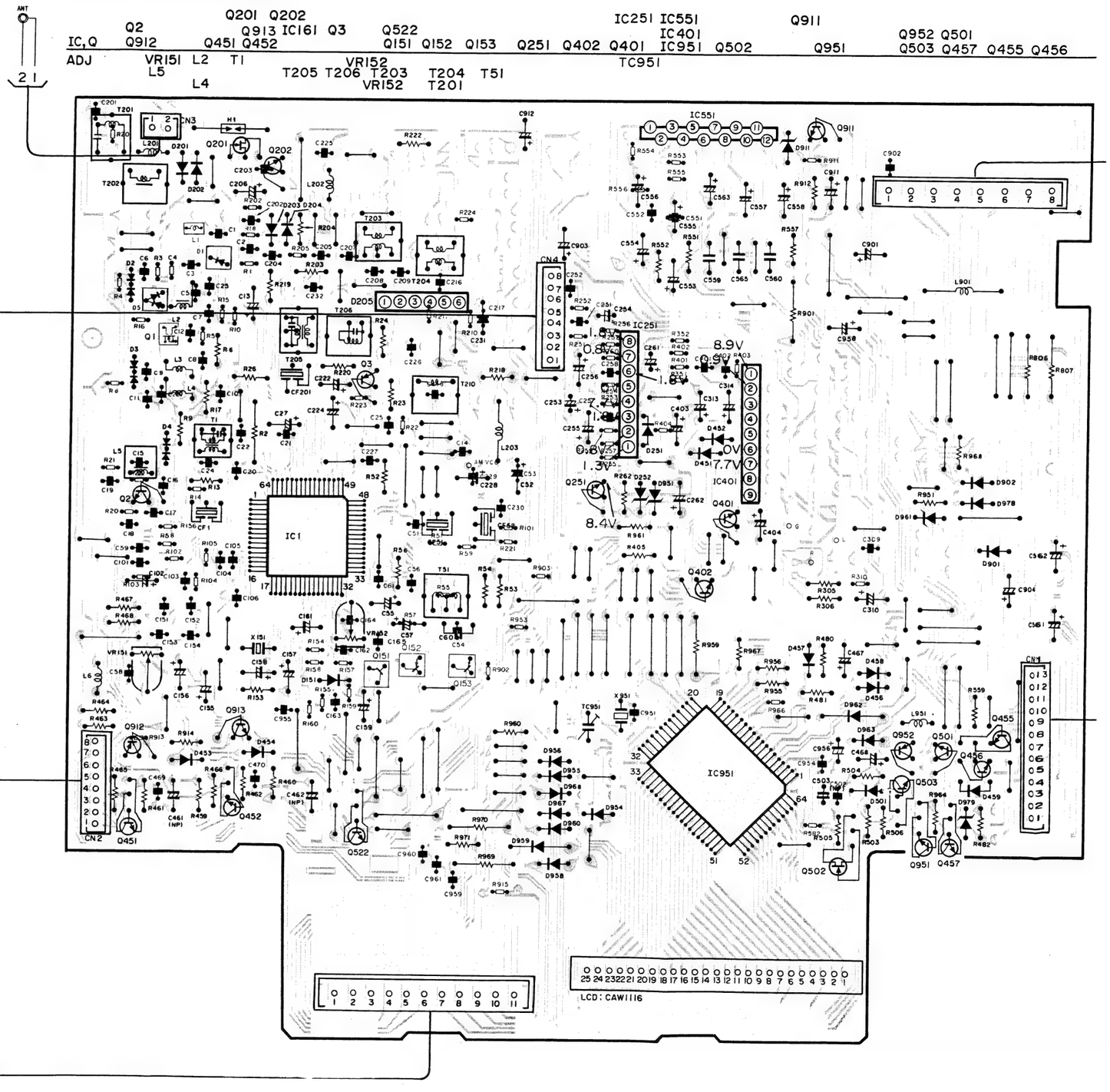


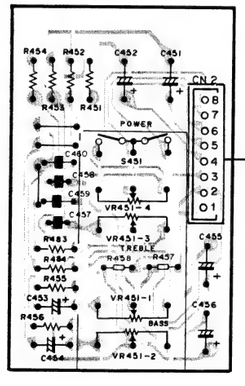
FADER VOLUME P.C. BOARD

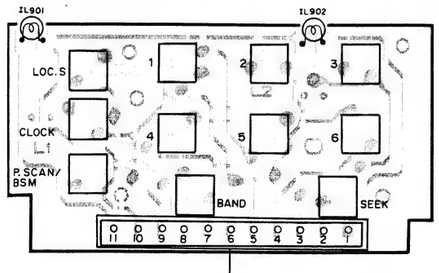
Fig. 8

8. CONNECTION DIAGRAM (KE-3033)





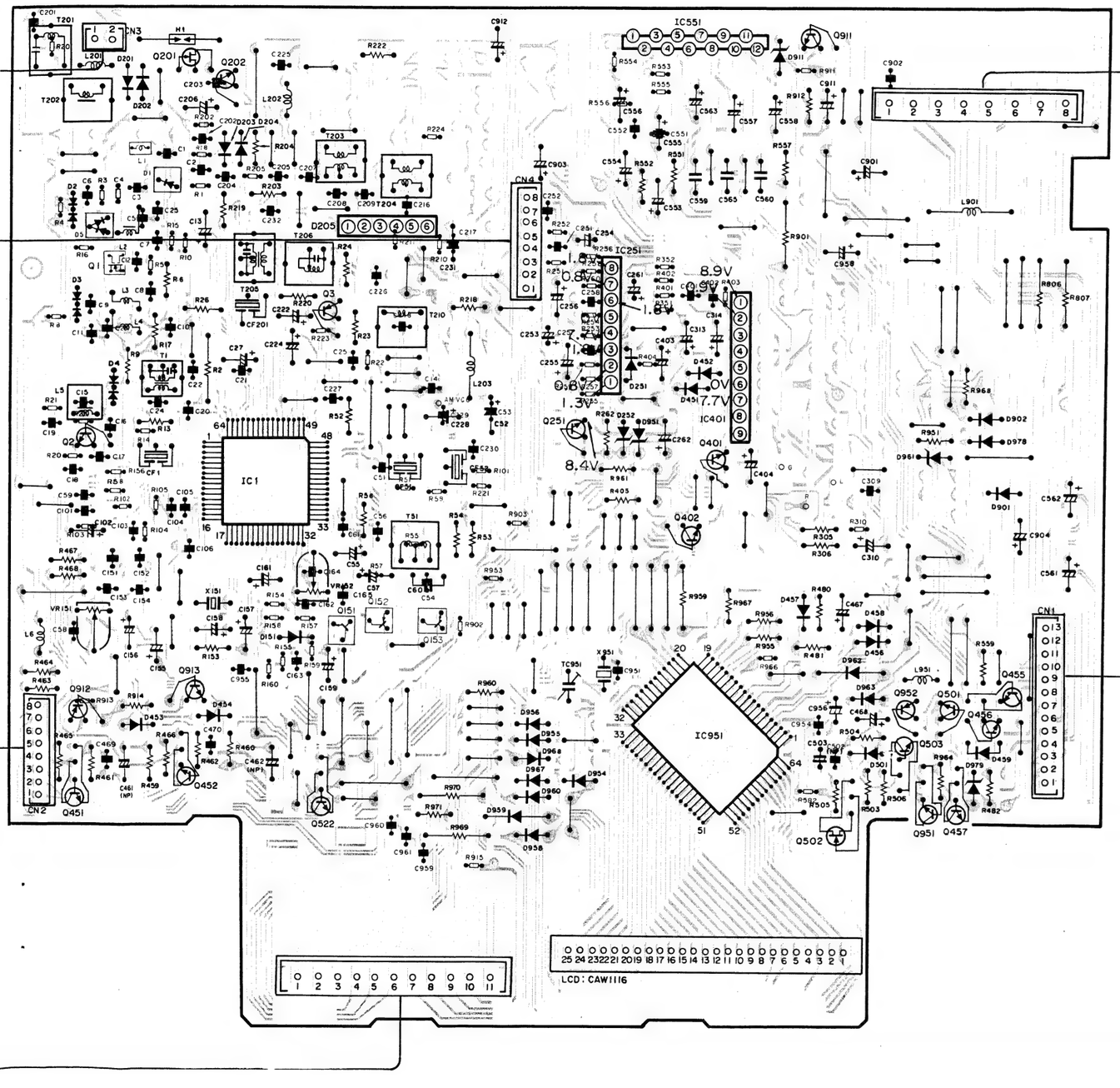




TUNER AMP P.C. BOARD

IC,Q: Q2 Q912 | Q201 Q202 Q913 Q451 Q452 | IC161 Q3 | Q522 Q151 Q152 Q153 | Q251 Q402 Q401 | IC251 IC551 IC401 IC951 | Q502 | Q911 Q951 | Q952 Q501 Q503 Q457 Q455 Q456

ADJ: VR151 L2 T1 L5 L4 | VR152 T205 T206 T203 T204 T51 VR152 T201 | TC951

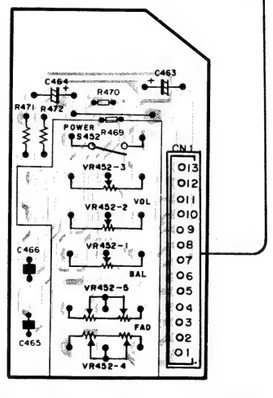


TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4		0		1.4	7.0	7.2	13.6	0		13.6	7.2				

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
IC1	2.1	0			5.2		2.9			4.8	4.8	4.8	2.8	0	2.3	2.3	4.7		3.5	3.5	3.5	
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	3.8	3.5	3.5	4.8			0 / 3.5	0	0 / 6.4	3.4			0								2.5 / 0	
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64		
		5.3 / 0	4.5 / 5.2	3.4 / 3.8	8.7	0.6 / 0	0.2	0 / 0.9	4.9 / 0	8.7	0 / 2.2	0 / 4.3		3.3 / 0	8.6 / 0	8.6 / 0	8.0 / 0	8.6 / 0				

(V)



FADER VOLUME P.C. BOARD

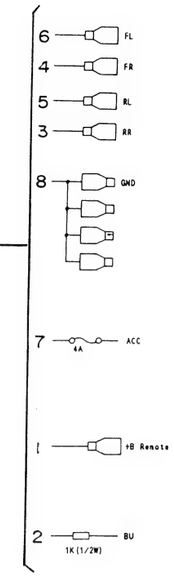
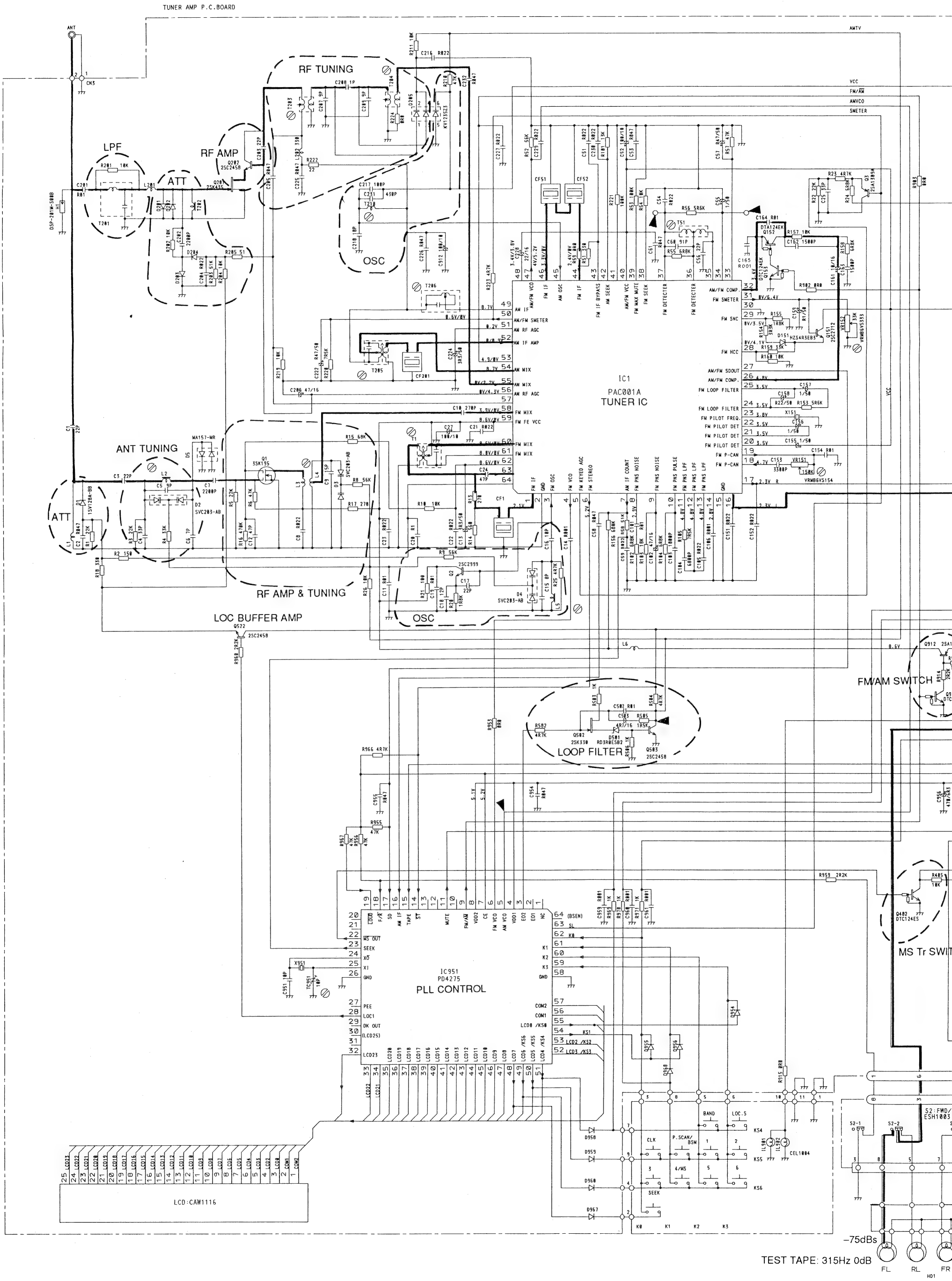


Fig. 9

9. SCHEMATIC CIRCUIT DIAGRAM (KE-3033)

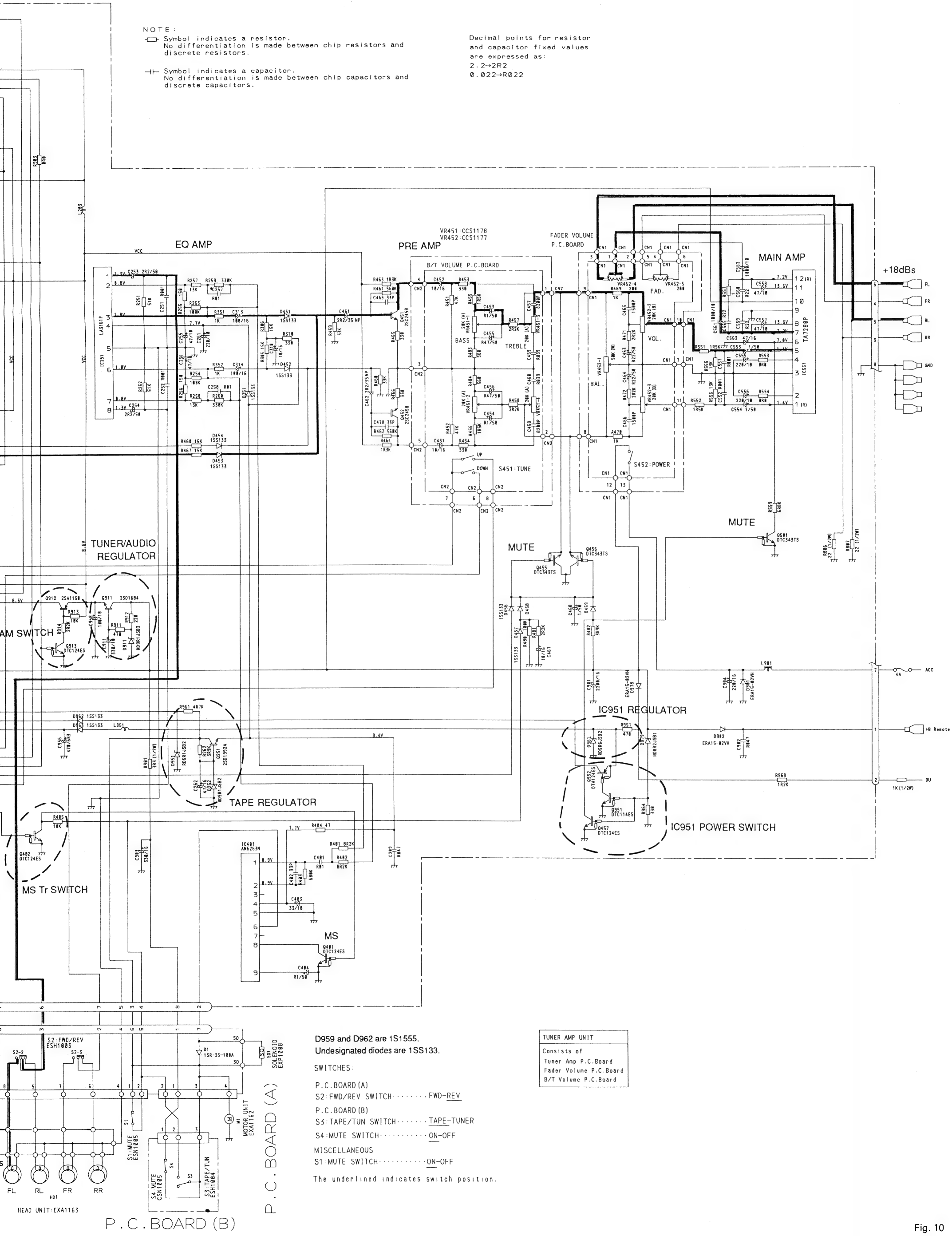


NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



D959 and D962 are 1S1555.
Undesignated diodes are 1SS133.

SWITCHES:

P.C.BOARD (A)
S2:FWD/REV SWITCH·····FWD-REV

P.C.BOARD (B)
S3:TAPE/TUN SWITCH·····TAPE-TUNER
S4:MUTE SWITCH·····ON-OFF

MISCELLANEOUS
S1:MUTE SWITCH·····ON-OFF

The underlined indicates switch position.

TUNER AMP UNIT
Consists of
Tuner Amp P.C.Board
Fader Volume P.C.Board
B/T Volume P.C.Board

Fig. 10

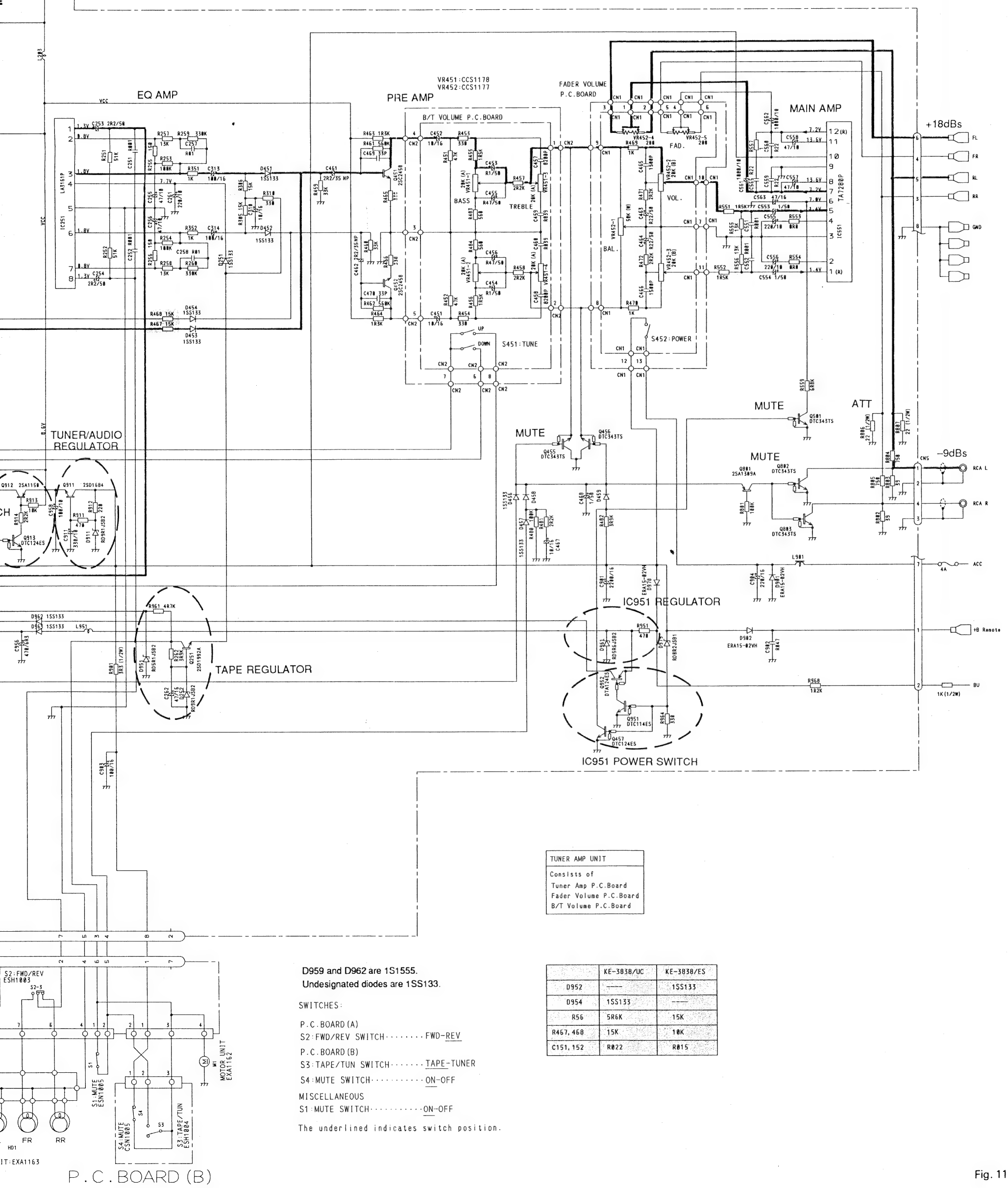
10. SCHEMATIC CIRCUIT DIAGRAM (KE-3838)

NOTE:

⊏⊐ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊣⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



P.C.BOARD (B)

D959 and D962 are 1S1555.
Undesignated diodes are 1SS133.

SWITCHES:

P.C.BOARD (A)
S2:FWD/REV SWITCH·····FWD-REV
P.C.BOARD (B)
S3:TAPE/TUN SWITCH·····TAPE-TUNER
S4:MUTE SWITCH·····ON-OFF
MISCELLANEOUS
S1:MUTE SWITCH·····ON-OFF

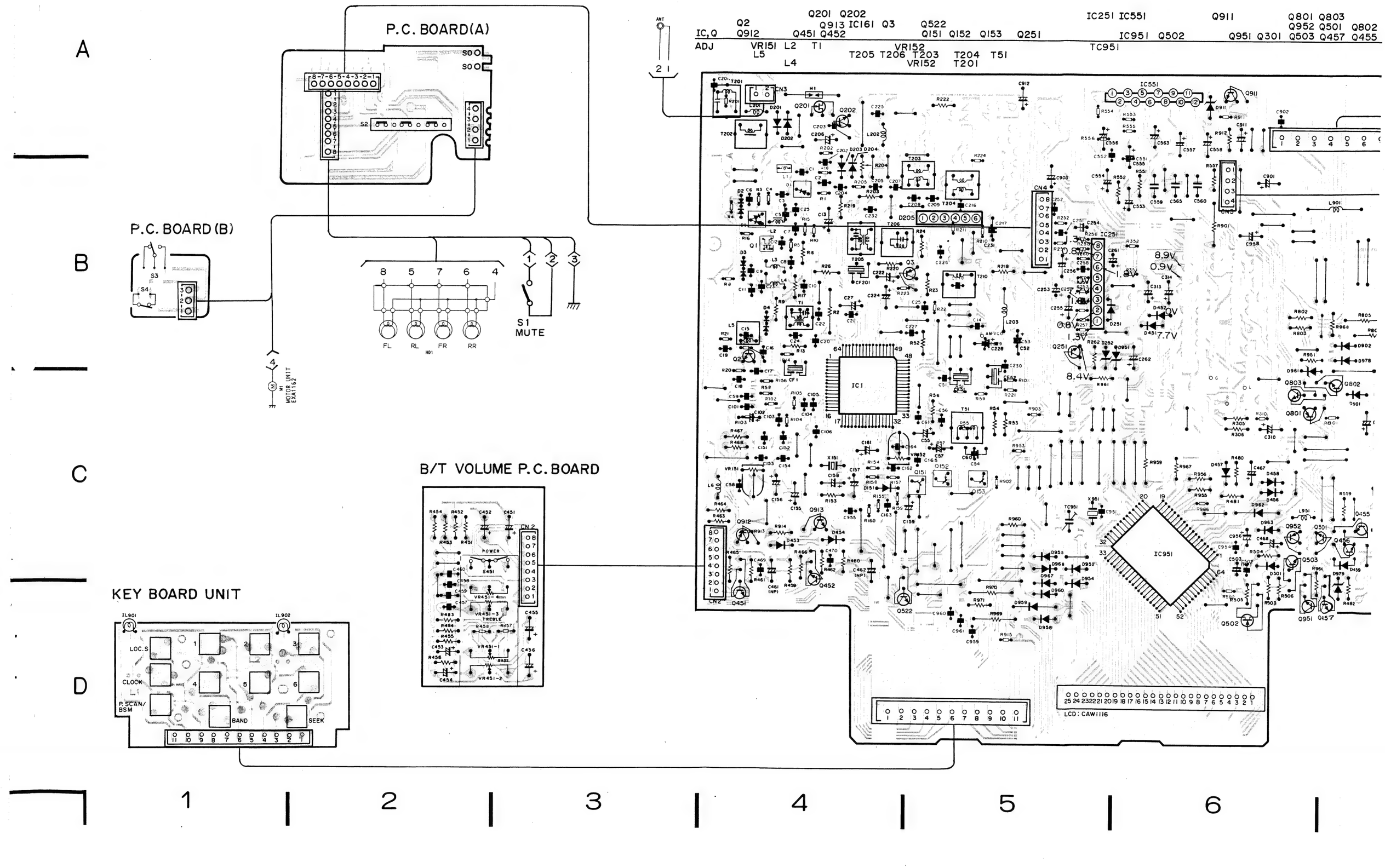
The underlined indicates switch position.

TUNER AMP UNIT
Consists of Tuner Amp P.C.Board Fader Volume P.C.Board B/T Volume P.C.Board

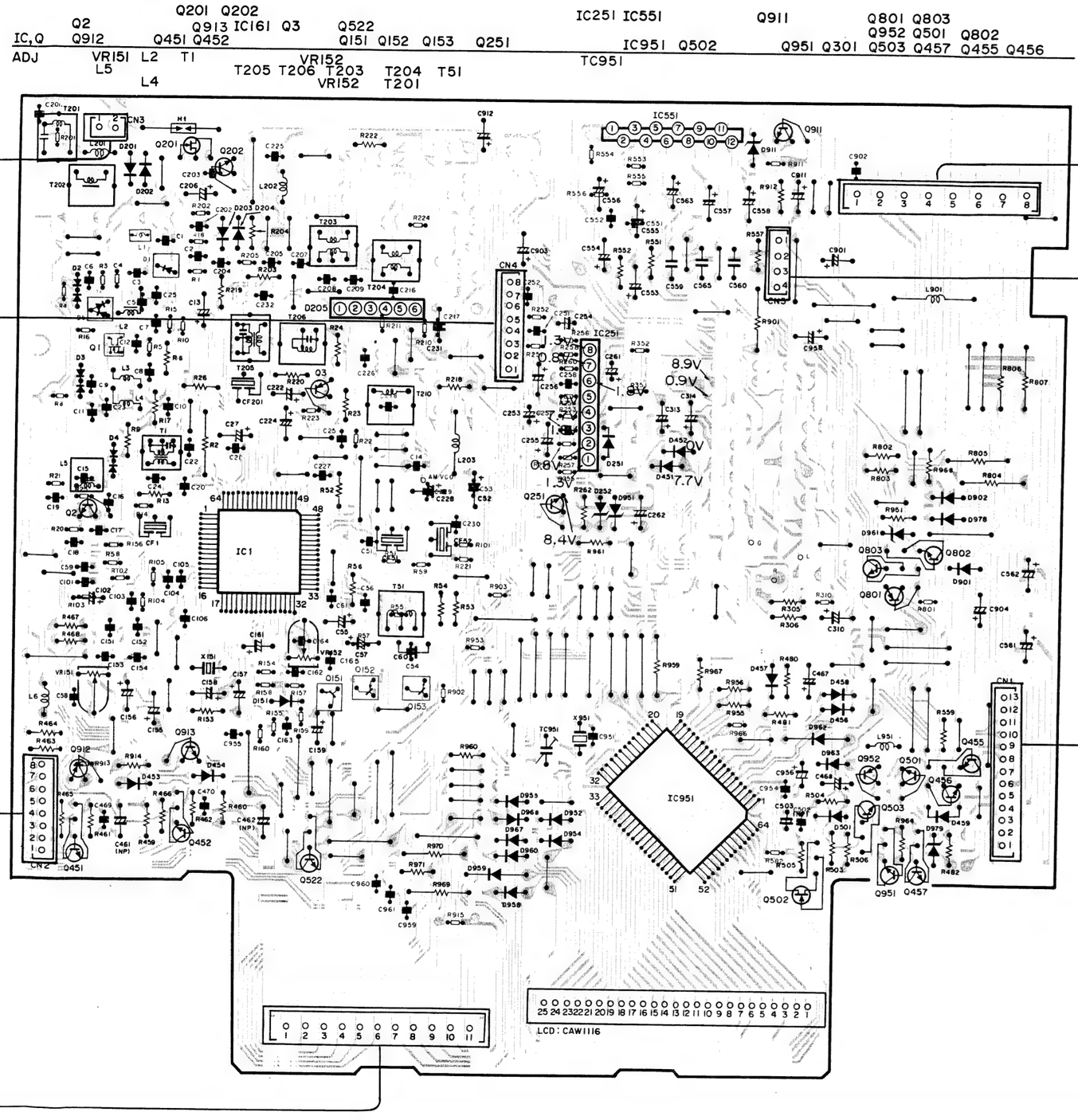
	KE-3838/UC	KE-3838/ES
D952	----	1SS133
D954	1SS133	----
R56	5R6K	15K
R467, 468	15K	10K
C151, 152	R022	R015

Fig. 11

11. CONNECTION DIAGRAM (KE-3838)



TUNER AMP P.C. BOARD

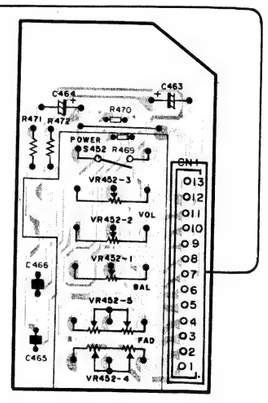


TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4		0		1.4	7.0	7.2	13.6	0		13.6	7.2				

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		2.1	0				5.2		2.9			4.8	4.8	4.8	2.8	0	2.3	2.3	4.7		3.5	3.5	3.5
		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
IC1		3.8	3.5	3.5	4.8			0		3.4				0									
		45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64		

(V)



FADER VOLUME P.C. BOARD

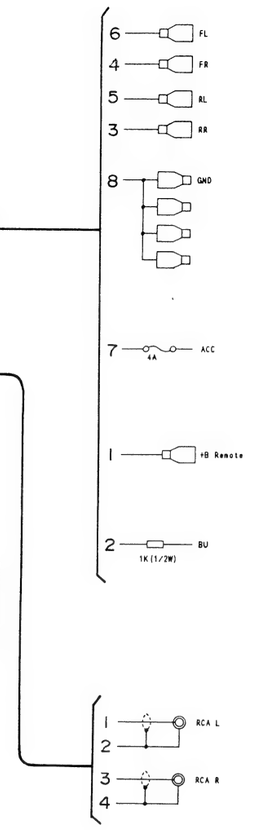


Fig. 12

12. CHASSIS EXPLODED VIEW

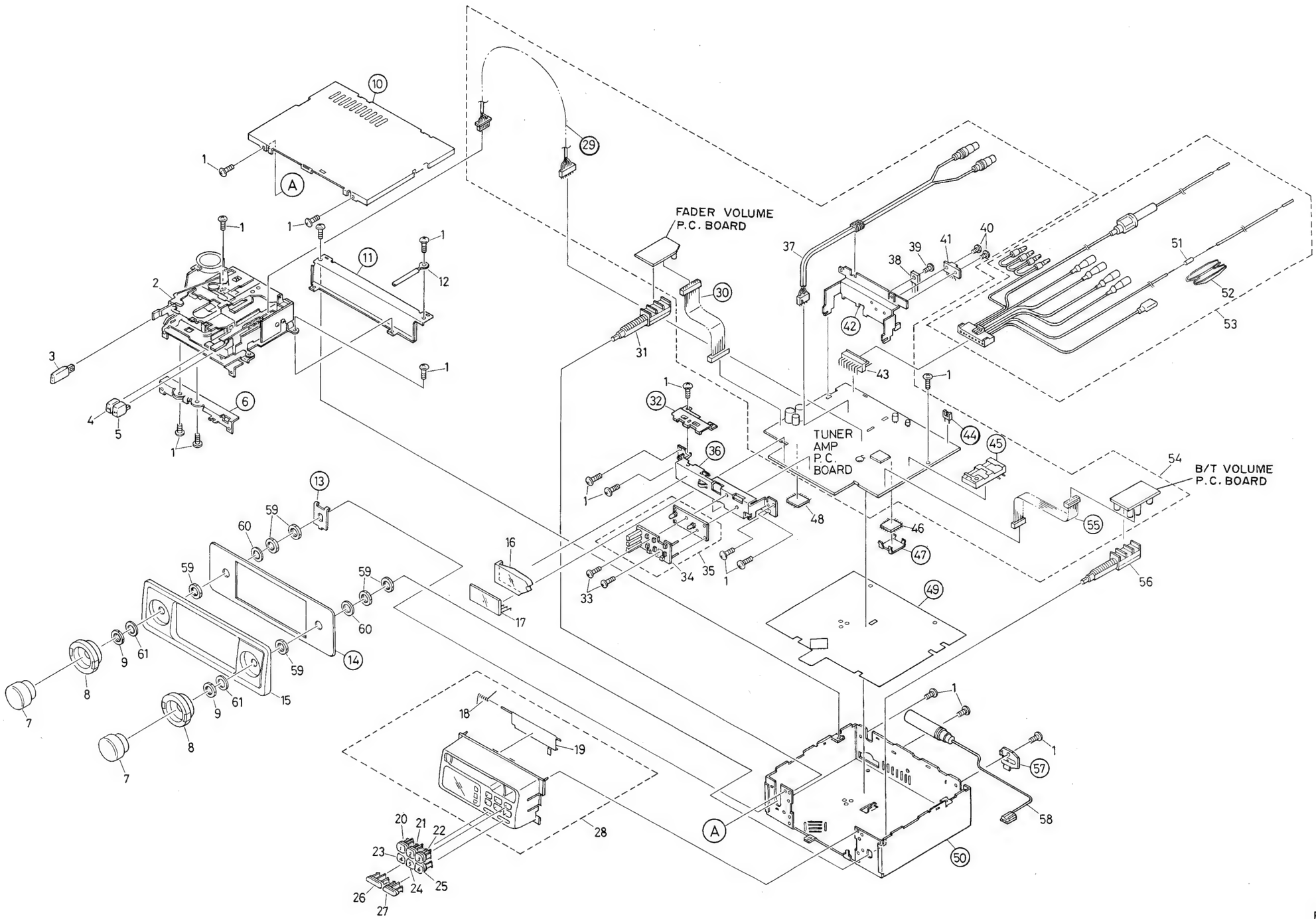


Fig. 13

NOTE:
- Parts who
- Parts mar
longer tha

• **Parts Lis**

Mark	No.	D
	1	S
◉	2	C
		A
		C
		A
	3	B
	4	B
	5	B
	6	B
	7	K
	8	K
	9	N
	10	C
	11	B
	12	C
	13	H
	14	P
	15	P
		P
	16	L
	17	L
	18	S
	19	D
		D
	20	B
	21	B
	22	B
	23	B
	24	B
	25	B
	26	B
	27	B
	28	G
		G
		G
	29	C
	30	C
	31	V
	32	B
	33	S
	34	R
ϕ	35	K

K

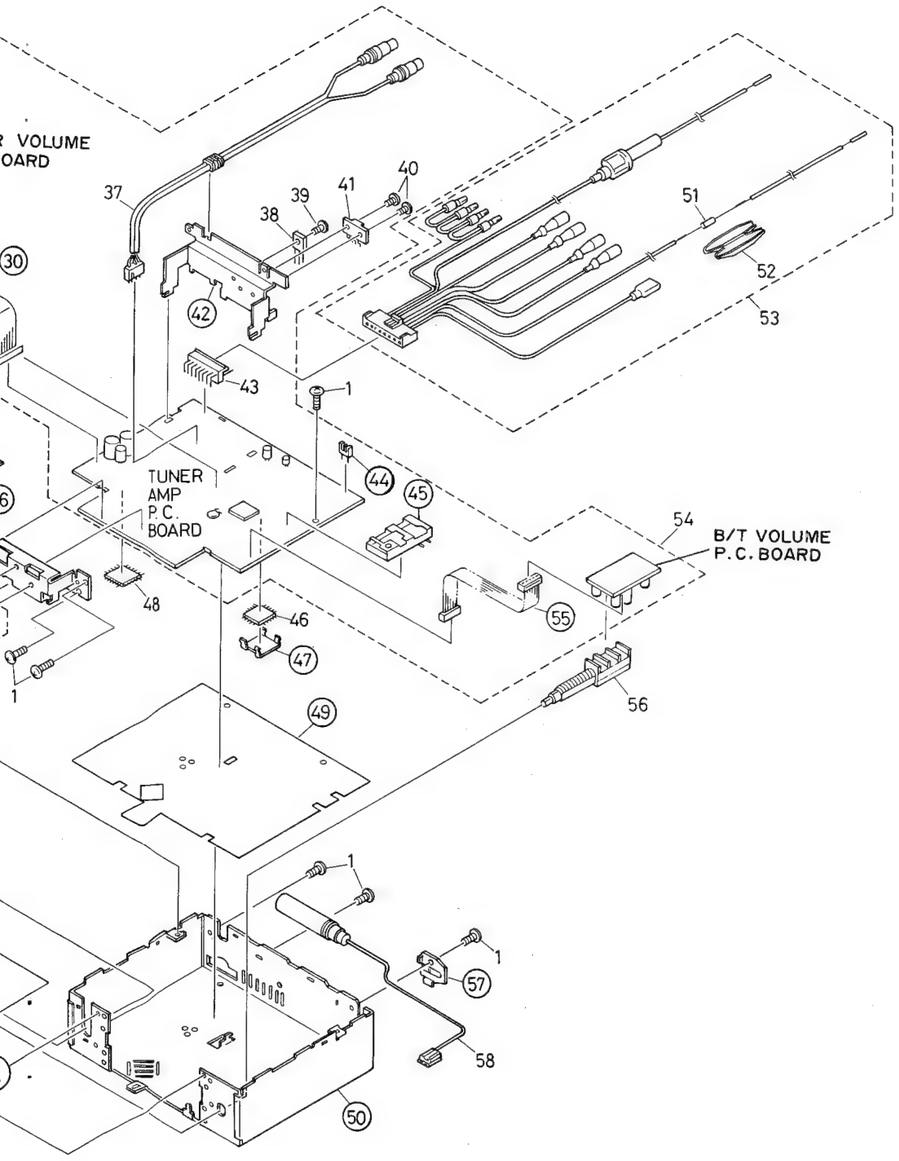


Fig. 13

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

• Parts List

Mark	No.	Description	Part No.
	1	Screw	BMZ26P050FMC
◉	2	Cassette Mechanism Assy (KE-250, 3033)	EXK1720
		Cassette Mechanism Assy (KE-3838)	EXK1710
	3	Button (EJ)	CAC2669
	4	Button (REW)	CAC2667
	5	Button (FF)	CAC2666
	6	Bracket	
	7	Knob	CAA1239
	8	Knob	CAA1238
	9	Nut	CBN1001
	10	Case	
	11	Bracket	
	12	Clamper	CEF-007
	13	Holder	
	14	Plate	
	15	Panel (KE-250)	CNS2206
		Panel (KE-3033, 3838)	CNS2208
	16	Lens	CNV2602
	17	LCD	CAW1116
	18	Spring	CBH1396
	19	Door (KE-250)	CAT1336
		Door (KE-3033, 3838)	CAT1361
	20	Button (1)	CAC2658
	21	Button (2)	CAC2659
	22	Button (3)	CAC2660
	23	Button (4)	CAC2661
	24	Button (5)	CAC2662
	25	Button (6)	CAC2663
	26	Button (BAND)	CAC2904
	27	Button (SEEK)	CAC2905
	28	Grille Unit (KE-250)	CXA3873
		Grille Unit (KE-3033)	CXA3874
		Grille Unit (KE-3838)	CXA3872
	29	Connector	
	30	Connector	
	31	Volume	CCS1177
	32	Bracket	
	33	Screw	BMZ20P040FMC
	34	Rubber	CNV2601
◉	35	Key Board Unit (US, UC, ES)	CWS1193
		Key Board Unit (XSG/UC, XML/UC)	CWS1195
	36	Bracket	
	37	Connector (KE-250, 3838)	CDE1674
		····· (KE-3033)	
	38	Transistor	2SD1684
	39	Screw	BMZ30P080FMC
	40	Screw	BMZ30P050FMC
	41	IC	TA7280P
	42	Bracket	
	43	Plug	CKS-465
	44	Plug	
	45	Case	
	46	IC	PAC001A
	47	Shield	
	48	IC	PD4275
	49	Insulator	
	50	Chassis	
	51	Resistor	RS1/2P102JL
	52	Cap	CNS1472
	53	Cord Assy	CDE3010
◉	54	Tuner Amp Unit (KE-250)	CWM2515
		Tuner Amp Unit (KE-3033/UC)	CWM2516
		Tuner Amp Unit (KE-3033/XSG)	CWM2564
		Tuner Amp Unit (KE-3838/UC)	CWM2513
		Tuner Amp Unit (KE-3838/ES)	CWM2514
		Tuner Amp Unit (KE-3838/XSG, XML)	CWM2562
	55	Connector	
	56	Volume	CCS1178
	57	Holder	
	58	Antenna Cable	CDH1115
	59	Nut	CBN-028
	60	Washer	CND-646
	61	Spacer	CNC1528

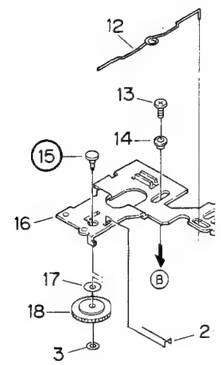
13. CASSETTE MECHANISM ASSY EXPLODED VIEW (KE-250, 3033)

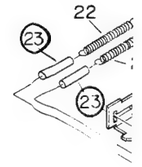
• Parts List

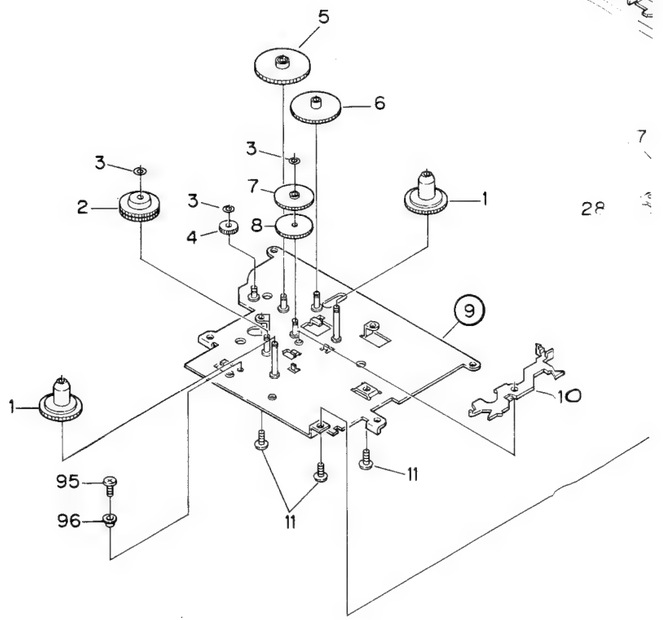
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1167	46	Switch	ESH1004
2	Gear Unit	EXA1159	47	Switch	CSN1005
3	Washer	CBF1037	48	Screw	CBA1025
4	Gear	ENV1230	49	Gear	ENV1229
5	Gear	ENV1203	50	Washer	CBF1038
6	Gear	ENV1204	51	Belt	ENT1020
7	Gear	ENV1212	52	Gear	ENV1209
8	Gear	ENV1211	53	Arm Unit	EXA1155
9	Sub Chassis Unit		54	Washer	YE30FUC
10	Arm	ENV1210	55	Spring	EBH1310
11	Screw	BMZ20P025FMC	56	Flywheel Unit	EXA1161
12	Spring	EBH1304	57	Belt	ENT1018
13	Screw	JFZ20P040FNI	58	Arm	ENV1206
14	Collar	ELA1220	59	Spring	EBH1317
15	Shaft		60	Gear	ENV1205
16	Lever	ENC1202	61	Chassis Unit	
17	Washer	EBF1015	62	Screw	JFZ20P025FNI
18	Gear	ENV1268	63	Bracket	
19	Spring	EBH1313	64	Pulley	ENV1207
20	Spring	EBH1314	65	Solenoid	EXP1008
21	Lever	ENC1208	66	Screw	EBA1023
22	Spring	EBH1307	67	Plug	
23	Tube		68	P.C.Board	
24	Spring	EBH1306	69	Switch	ESH1003
25	·····		70	Washer	WH23FMC
26	Lever	ENC1209	71	Screw	BSZ23P040FMC
27	Spring	EBH1316	72	Screw	CBA1015
28	Arm	ENC1222	73	Head Unit	EXA1163
29	Spring	EBH1308	74	P.C.Board	ENP1042
30	Washer	YE15FUC	75	Switch	ESN1005
31	Arm	ENC1221	76	Washer	YE20FUC
32	Spring	EBH1305	77	Pinch Roller Unit	EXA1154
33	Frame	ENC1204	78	Washer	YE12FUC
34	Arm	ENC1215	79	Roller	ELA1250
35	Shaft	ELA1251	80	Arm Unit	EXA1166
36	Holder	ENC1205	81	Screw	CBA1038
37	Spring	EBH1344	82	Arm	ENV1227
38	Lever	ENV1222	83	Spring	EBH1312
39	Head Base Unit	EXA1152	84	Arm	ENC1212
40	Tube		85	Spring	EBH1322
41	Spring	EBH1315	86	Lever	ENC1228
42	Motor Unit	EXA1162	87	Spring	EBH1331
43	Screw	PMS26P025FUC	88	Lever	ENC1229
44	Screw	CBA1054	89	Arm Unit	
45	P.C.Board		90	Pinch Roller Unit	EXA1153

• Cassette Mechanism Assy

Mark No.	Description	Part No.
91	Spring	EBH1318
92	Arm Unit	EXA1157
93	Spring	EBH1345
94	Collar	ELA1229
95	Screw	JGZ17P035FNI
96	Collar	ELA1252







• **Cassette Mechanism Assy**

50, 3033)

Mark	No.	Description	Part No.
	91	Spring	EBH1318
	92	Arm Unit	EXA1157
	93	Spring	EBH1345
	94	Collar	ELA1229
	95	Screw	JGZ17P035FNI
	96	Collar	ELA1252

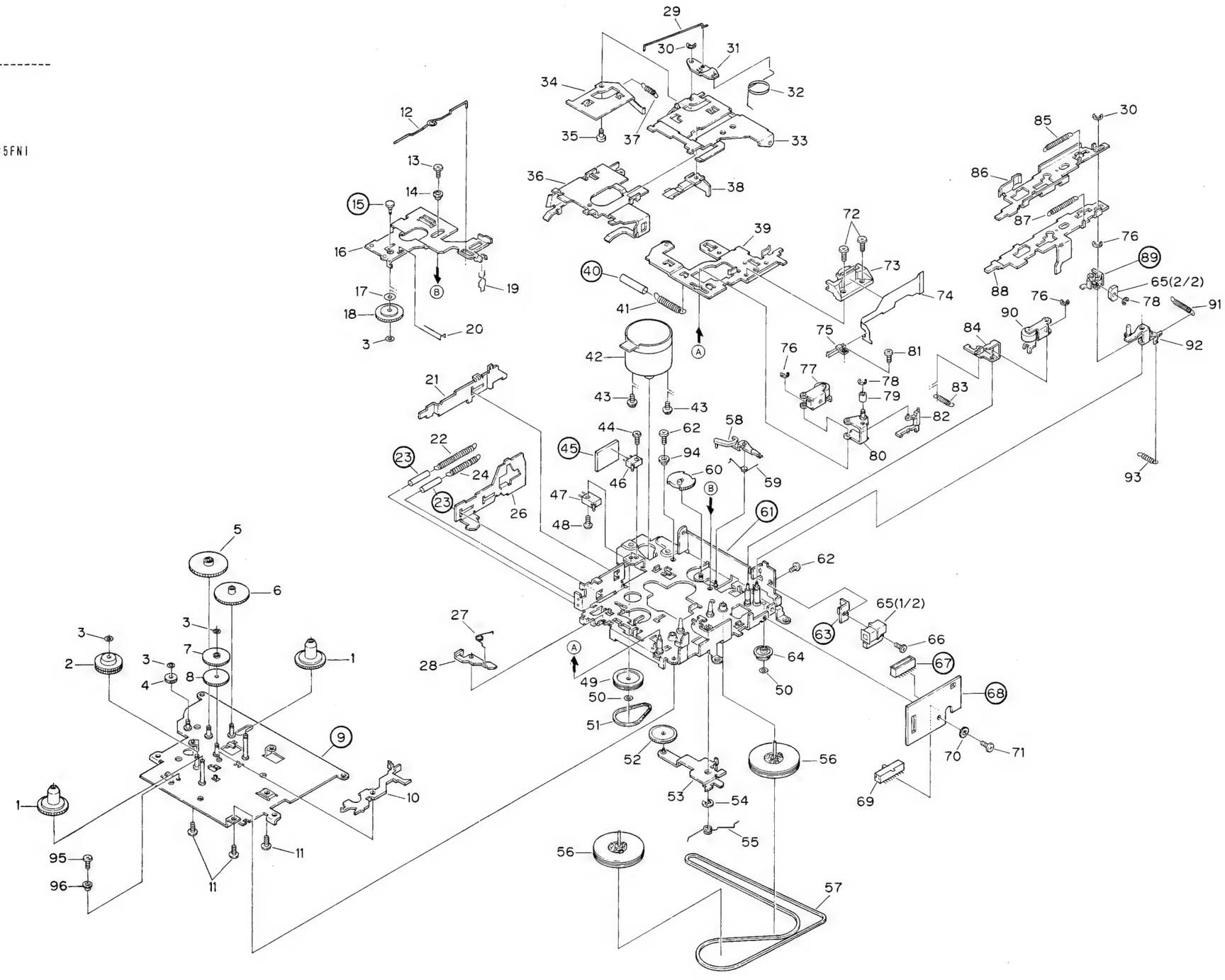


Fig. 14

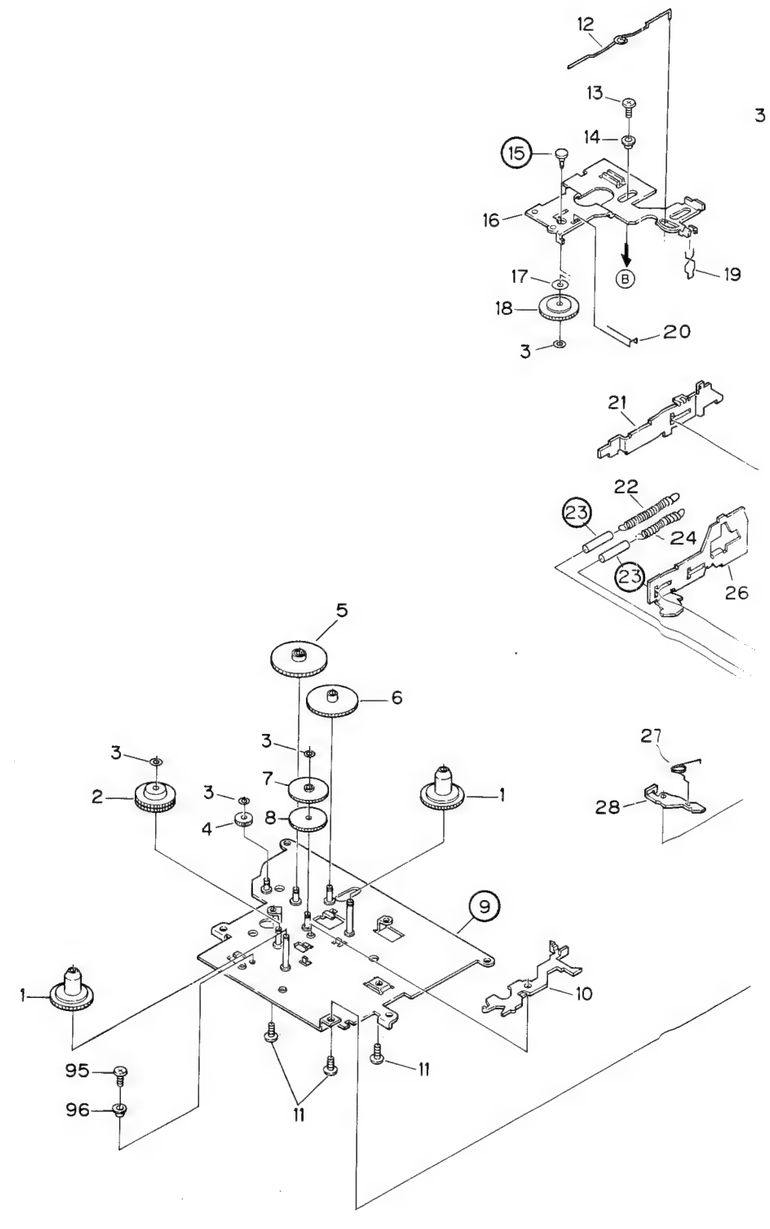
14. CASSETTE MECHANISM ASSY EXPLODED VIEW (KE-3838)

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1167	46	Switch	ESH1004
2	Gear Unit	EXA1159	47	Switch	CSN1005
3	Washer	CBF1037	48	Screw	CBA1025
4	Gear	ENV1230	49	Gear	ENV1229
5	Gear	ENV1203	50	Washer	CBF1038
6	Gear	ENV1204	51	Belt	ENT1020
7	Gear	ENV1212	52	Gear	ENV1209
8	Gear	ENV1211	53	Arm Unit	EXA1155
9	Sub Chassis Unit		54	Washer	YE30FUC
10	Arm	ENV1210	55	Spring	EBH1310
11	Screw	BMZ20P025FMC	56	Flywheel Unit	EXA1161
12	Spring	EBH1304	57	Belt	ENT1018
13	Screw	JFZ20P040FNI	58	Arm	ENV1206
14	Collar	ELA1220	59	Spring	EBH1317
15	Shaft		60	Gear	ENV1205
16	Lever	ENC1202	61	Chassis Unit	
17	Washer	EBF1015	62	Screw	JFZ20P025FNI
18	Gear	ENV1268	63	·····	
19	Spring	EBH1313	64	Pulley	ENV1207
20	Spring	EBH1314	65	·····	
21	Lever	ENC1208	66	·····	
22	Spring	EBH1307	67	Plug	
23	Tube		68	P.C.Board	
24	Spring	EBH1306	69	Switch	ESH1003
25	·····		70	Washer	WH23FMC
26	Lever	ENC1209	71	Screw	BSZ23P040FMC
27	Spring	EBH1316	72	Screw	CBA1015
28	Arm	ENC1222	73	Head Unit	EXA1163
29	Spring	EBH1308	74	P.C.Board	ENP1042
30	Washer	YE15FUC	75	Switch	ESN1005
31	Arm	ENC1221	76	Washer	YE20FUC
32	Spring	EBH1305	77	Pinch Roller Unit	EXA1154
33	Frame	ENC1204	78	·····	
34	Arm	ENC1215	79	·····	
35	Shaft	ELA1251	80	Arm	ENC1213
36	Holder	ENC1205	81	Screw	CBA1038
37	Spring	EBH1344	82	Arm	ENV1227
38	Lever	ENV1222	83	Spring	EBH1312
39	Head Base Unit	EXA1152	84	Arm	ENC1212
40	Tube		85	Spring	EBH1309
41	Spring	EBH1315	86	Lever	ENC1206
42	Motor Unit	EXA1162	87	Spring	EBH1309
43	Screw	PMS26P025FUC	88	Lever	ENC1207
44	Screw	CBA1054	89	·····	
45	P.C.Board		90	Pinch Roller Unit	EXA1153

• Cassette Mechanism Assy

Mark No.	Description	Part No.
91	·····	
92	Arm	ENC1220
93	Spring	EBH1311
94	Collar	ELA1229
95	Screw	JGZ17P035FNI
96	Collar	ELA1252



• Cassette Mechanism Assy

Mark No.	Description	Part No.
	91 ·····	
	92 Arm	ENC1220
	93 Spring	EBH1311
	94 Collar	ELA1229
	95 Screw	JGZ17P035FNI
	96 Collar	ELA1252

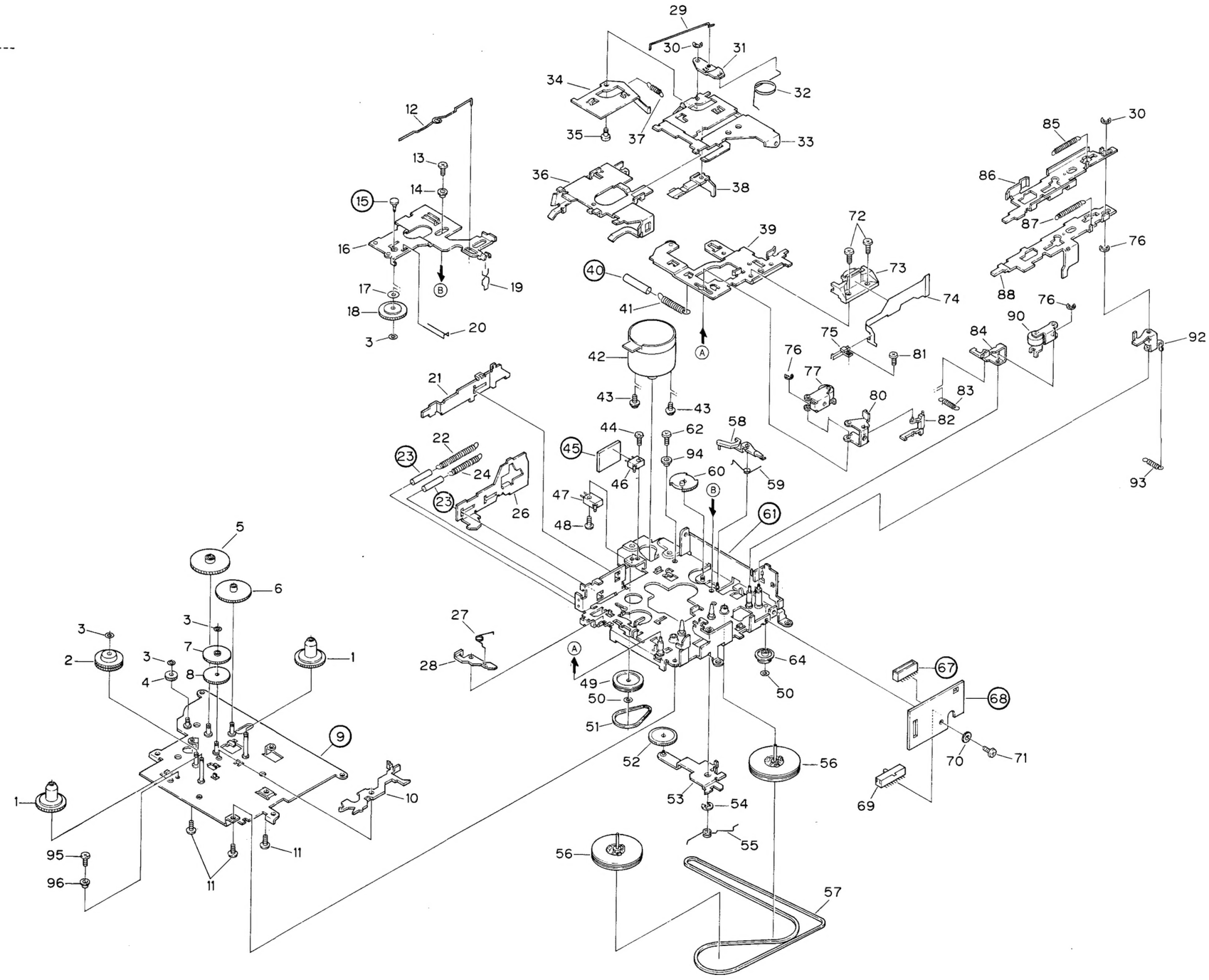


Fig. 15

15. PACKING METHOD

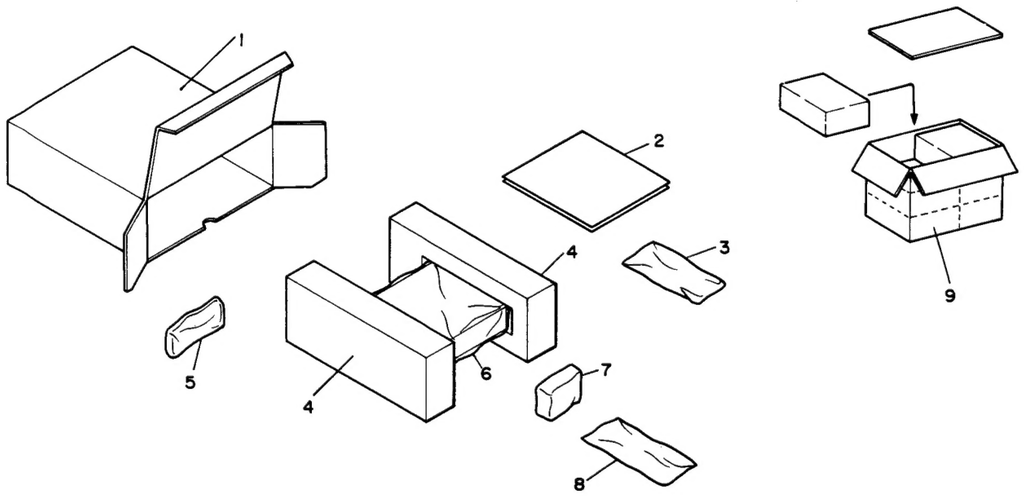


Fig. 16

• Parts List (KE-250/US)

Mark No.	Description	Part No.
1	Carton	CHG1896
2-1	Owner's Manual	CRB1195
2-2	Card	
3	Accessory Assy	CEA1617
3-1	Cord	CDE1289
3-2	Strap	CNF-111
3-3	Cover	CNS-722
3-4	Screw Assy	
3-4-1	Screw for Strap (× 1)	CBA-028
3-4-2	Nut (× 4)	CBN-028
3-4-3	Nut (× 2)	CBN1001
3-4-4	Spacer (× 2)	CNC1528
3-4-5	Spacer (× 10)	CND-646
3-4-6	Nut (× 1)	NF40FMC
3-4-7	Nut (× 2)	NF50FMC
3-4-8	Screw (× 2)	PMB50Y160FMC
3-4-9	Washer (× 1)	WS40FMC
4	Styrofoam (× 2)	CHP1376
5	Cord Assy	CDE3010
6	Polyethylene Bag	CEG-215
7	Knob Assy	CXA3859
7-1	Knob (× 2)	CAA1238
7-2	Knob (× 2)	CAA1239
8	Panel Assy	CXA4062
8-1	Plate	
8-2	Panel	CNS2206
9	Contain Box	CHL1896

NSP:Non spare part

No.	Description	KE-250/US	KE-3033/UC	KE-3033/XSG	KE-3838/UC	KE-3838/ES
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Carton	CHG1896	CHG1897	CHG1920	CHG1895	CHG1898
2-1	Owner's Manual	CRB1195	CRD1423	CRD1443	CRD1422	CRD1424
2-2	Card	NSP	NSP	NSP	NSP	----
3	Accessory Assy	CEA1617	CEA1617	CEA1612	CEA1617	CEA1617
4	Styrofoam (× 2)	CHP1376	CHP1376	CHP1383	CHP1376	CHP1376
8	Panel Assy	CXA4062	CXA4064	CXA4064	CXA4464	CXA4064
8-2	Panel	CNS2206	CNS2208	CNS2208	CNS2208	CNS2208
9	Contain Box	CHL1896	CHL1897	CHL1920	CHL1895	CHL1898

No.	Description	KE-3838/UC	KE-3838/XSG	KE-3838/XML
		Part No.	Part No.	Part No.
1	Carton	CHG1895	CHG1915	CHG1919
2-1	Owner's Manual	CRD1422	CRD1442	CRD1442
2-2	Card	NSP	NSP	NSP
3	Accessory Assy	CEA1617	CEA1612	CEA1612
4	Styrofoam (× 2)	CHP1376	CHP1383	CHP1383
8	Panel Assy	CXA4064	CXA4064	CXA4064
8-2	Panel	CNS2208	CNS2208	CNS2208
9	Contain Box	CHL1895	CHL1915	CHL1919

*Owner's Manual

Part No.	Model	Language
CRB1195	KE-250/US	English
CRD1423	KE-3033/UC	English, French, Spanish
CRD1422	KE-3838/UC	English, French
CRD1424	KE-3838/ES	English, French, Spanish, Arabic
CRD1442	KE-3838/XSG, XML	English, French
CRD1443	KE-3033/XSG	English, French, Spanish

16. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S□□□J, RS1/10S□□□J
  Chip Capacitor (except for CQS.....)
  CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : Tuner Amp Unit(KE-250/US)

Tuner Amp Unit
Consists of • Tuner Amp P. C. Board • Fader Volume P. C. Board • B/T Volume P. C. Board

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
	IC 1		PAC001A
	IC 251		LA3161P
	IC 401		AN6263N
	IC 551		TA7280P
	IC 951		PD4275
	Q 1	Chip Transistor	3SK195
	Q 2		2SC2999
	Q 3 801		2SA1309A
	Q 151	Chip Transistor	2SC2712
	Q 152	Chip Transistor	DTA124EK
	Q 153	Chip Transistor	DTC124EK
	Q 201		2SK435
	Q 202 503 522		2SC2458
	Q 251		2SD1992A
	Q 401 402 457 913		DTC124ES
	Q 451 452		2SC2458
	Q 455 456 501 802 803		DTC343TS
	Q 502		2SK330
	Q 911		2SD1684
	Q 912		2SA1150
	Q 951		DTC114ES
	Q 952		DTA124ES
	D 1	Chip Diode	1SV128A
	D 2 3 4	Variable Capacitance Diode	SVC203
	D 5	Chip Diode	MA157-MR
	D 151		HZS4R3E
	D 201 202 203 204 251 451 452 453 454 456		1SS133
	D 205	Variable Capacitance Diode	KV1235Z3
	D 252 911		RD9R1JSB2
	D 457 458 459 954 955 956 958 960 963		1SS133
	D 501		RD3R0ESB2
	D 901 902 978		ERA15-02VH
	D 951		RD5R1JSB2
	D 959 962		1S1555
	D 961		RD5R6JSB2
	D 967 968		1SS133
	D 979		RD8R2JS
	L 1	Inductor	CTF1065
	L 2	Coil	CTC1022
	L 3	Coil	CTC1020
	L 4	Coil	CTC1056
	L 5	OSC Coil	CTC1024
	L 6	Inductor	LAU150K
	L 201	Ferri-Inductor	LAU4R7K
	L 202	Ferri-Inductor	LAU330K
	L 203	Ferri-Inductor	CTF-161
	L 901		CTH1084
	L 951	Ferri-Inductor	LAU101K
	T 1	Coil	CTC1064
	T 51	Coil	CTC1060
	T 201	Coil	CTB1056
	T 202	Coil	CTB1008
	T 203 204	Coil	CTB1058
	T 205	Coil	CTE1041
	T 206	Coil	CTE1042
	T 210	Coil	CTB1061
	TC 951	Trimmer	CCG-070
	CF 1	Ceramic Filter	CTF-182
	CF 51 52	Ceramic Filter	CTF1130
	CF 201	Filter	CTF1085
	H 1		DSP-201M
	X 151		CSS1065
	X 951	Crystal Resonator	CSS1011
	VR 151		VRMB6VS154
	VR 152		VRMB6VS333
	VR 451		CCS1178
	VR 452		CCS1177
		LCD	CAW1116

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 3 5		RS1/10S223J
	R 2		RD1/4PS151JL
	R 4 159		RS1/10S333J
	R 6 451 452 955 956 967		RD1/4PS473JL
	R 8		RS1/10S563J
	R 9 52		RD1/4PS563JL
	R 10 157 160 201 202 211 913		RS1/10S103J
	R 13 17		RD1/4PS271JL
	R 14		RS1/10S561J
	R 15		RS1/10S683J
	R 16		RS1/10S474J
	R 18 51 310		RS1/10S331J
	R 20 155		RS1/10S182J
	R 21		RS1/10S101J
	R 22		RS1/10S223J
	R 23		RD1/4PS472JL
	R 24		RD1/4PS682JL
	R 25 223 966		RS1/10S472J
	R 26 204 219 405		RD1/4PS103JL
	R 53 480		RD1/4PS104JL
	R 54		RD1/4PS103JL
	R 55 104 158		RS1/10S682J
	R 56 153		RD1/4PS562JL
	R 57 210		RS1/10S473J
	R 58 251 252		RS1/10S513J
	R 59 224 553 554 902 953		RS1/10S0R0J
	R 101		RS1/10S133J
	R 102		RS1/10S682J
	R 103		RS1/10S183J
	R 105		RS1/10S752J
	R 154		RS1/10S332J
	R 156		RS1/10S684J
	R 203		RD1/4PS513JL
	R 205		RS1/10S510J
	R 220		RD1/4PS752JL
	R 221		RS1/10S104J
	R 222		RD1/4PS220JL
	R 253 254 801		RS1/10S104J
	R 255 256		RS1/10S151J
	R 257 258		RS1/10S133J
	R 259 260		RS1/10S334J
	R 262 482		RD1/4PS392JL
	R 305 306 467 468		RD1/4PS153JL
	R 351 352 469 470		RS1/10S102J
	R 401 402		RS1/10S822J
	R 403		RS1/10S684J
	R 404		RS1/8S470J
	R 453 454 465 466 964		RD1/4PS331JL
	R 455 456 505 551 552		RD1/4PS152JL
	R 457 458		RS1/8S222J
	R 459 460		RD1/4PS333JL
	R 461 462		RD1/4PS564JL
	R 463 464		RD1/4PS132JL
	R 471 472 481 914 960		RD1/4PS222JL
	R 483 484		RD1/4PS561JL
	R 503 506 971		RD1/4PS102JL
	R 504 961		RD1/4PS472JL
	R 555 556		RS1/10S133J
	R 557		RD1/4PS010JL
	R 559		RD1/4PS682JL
	R 582		RS1/8S472J
	R 802 803		RD1/4PS390JL
	R 804 805		RD1/4PS751JL
	R 806 807		RD1/2PS220JL
	R 901		RD1/2PS3R3JL
	R 903 915		RS1/8S0R0J
	R 911		RS1/10S471J
	R 912		RD1/4PS221JL
	R 951		RD1/4PS471JL
	R 959		RD1/4PS222JL
	R 968		RD1/4PS122JL
	R 969 970		RD1/4PS102JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 3 17 56 203		CCSQCH220J50
	C 2 53 58 205 225 226 232 902 954 955		CKSQYB473K25
	C 4 25 402 469 470		CCSQCH330J50
	C 5 207 209		CCSQTH090D50
	C 6		CCSQTH070D50
	C 7 202		CKSQYB222K50
	C 8 22 51 54 59 105 204 216 227 229		CKSQYB223K50
	C 9		CCSQTH150J50
	C 10		CCSQSL271J50
	C 11 19 101 154 164 201 401 502		CKSQYB103K50
	C 12 24		CCSQCH470J50
	C 13 224		CEA3R3M50LS
	C 14 959 960 961		CKSQYB102K50
	C 15		CCSQCH080D50
	C 16		CCSQCH100D50
	C 18		CCSQCH120J50
	C 20		CKSQYF104Z50
	C 21 23		CKSYB223K50
	C 27 52 912 958		CEA101M10LS
	C 55 155 156 157 468		CEA010M50LS2
	C 57 222		CEAR47M50LS2
	C 60		CCDLH910J50
	C 61 309		CKSYB473K50
	C 102 206 262		CEA470M16LS
	C 103		CKSQYB182K50
	C 104		CKSQYB682K50
	C 106 165		CKSQYB102K50
	C 151 152 230		CKSQYB223K50
	C 153		CKSQYB332K50
	C 158		CEAR22M50LS2
	C 159 404		CEA0R1M50LS2
	C 161 310 313 314 467		CEA100M16LS2
	C 162 163		CKSQYB152K50
	C 208		CCSQCH010C50
	C 217		CCSQRH101J50
	C 218		CCSQUJ180J50
	C 228		CEA220M16LS
	C 231		CQPA431G2A
	C 251 252		CKSQYB102K50
	C 253 254		CEANL2R2M50LL
	C 255 256		CEA470M10LS
	C 257 258		CKSQYB103K50
	C 261		CEA221M10L2
	C 403		CEA330M10LS
	C 451 452		CEA100M16L2
	C 453 454		CEA0R1M50L2
	C 455 456		CEAR47M50L2
	C 457 458		CKSQYB822K50
	C 459 460		CKSYB393K25
	C 461 462		CEALNP2R2M35
	C 503	4.7μF/16V	CCH1005
	C 551 552		CKSQYB102K50
	C 553 554		CEA010M50L2
	C 555 556		CEA221M10L2
	C 557 558		CEA470M10L2
	C 559 560 565		CQEA224J63
	C 561 562		CEA102M10L2
	C 563		CEA470M16L2
	C 901		CEA222M16L2
	C 903		CEA331M16L2
	C 904		CEA221M16L2
	C 911		CEA331M10L2
	C 951		CCSQCH100D50
	C 956		CEA471M6R3L2

Tuner Amp Unit	KE-250/US	KE-3033/UC, /XSG	KE-3838/UC, /XSG, /XML	KE-3838/ES
Symbol & No.	Part No.	Part No.	Part No.	Part No.
IC401	AN6263N	AN6263N	----	----
Q401, 402	DTC124ES	DTC124ES	----	----
Q801	2SA1309A	----	DTC343TS	DTC343TS
D952	----	----	----	1SS133
D954	1SS133	1SS133	1SS133	----
D956	1SS133	1SS133	----	----
R56	RD1/4PS562JL	RD1/4PS562JL	RD1/4PS562JL	RD1/4PS153JL
R401, 402	RS1/10S822J	RS1/10S822J	----	----
R403	RS1/10S684J	RS1/10S684J	----	----
R404	RS1/8S470J	RS1/8S470J	----	----
R405	RD1/4PS103JL	RD1/4PS103JL	----	----
R467, 468	RD1/4PS153JL	RD1/4PS153JL	RD1/4PS153JL	RD1/4PS103JL
R801	RS1/10S104J	----	RS1/10S104J	RS1/10S104J
R802, 803	RD1/4PS390JL	----	RD1/4PS390JL	RD1/4PS390JL
R804, 805	RD1/4PS751JL	----	RD1/4PS751JL	RD1/4PS751JL
C151, 152	CKSQYB223K50	CKSQYB223K50	CKSQYB223K50	CKSQYB153K50
C309	CKSYB473K50	CKSYB473K50	----	----
C401	CKSQYB103K50	CKSQYB103K50	----	----
C402	CCSQCH330J50	CCSQCH330J50	----	----
C403	CEA330M10LS	CEA330M10LS	----	----
C404	CEA0R1M50LS2	CEA0R1M50LS2	----	----
C463, 464	----	CEAR22M50LS2	CEAR22M50LS2	CEAR22M50LS2
C465, 466	----	CKSQYB152K50	CKSQYB152K50	CKSQYB152K50
C903	CEA331M16L2	CEA331M16L2	CEA101M16L2	CEA101M16L2

Unit Number :
Unit Name : Key Board Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
IL	901 902	Lamp 14V 40mA	CEL1004

Unit Number :
Unit Name : P.C.Board(A)

Mark	Circuit Symbol & No.	Part Name	Part No.
D	1 (KE-250, 3033)		1SR-35-100A
S	2	Switch(FWD/REV)	ESH1003

Unit Number :
Unit Name : P.C.Board(B)

Mark	Circuit Symbol & No.	Part Name	Part No.
S	3	Switch(TAPE/TUN)	ESH1004
S	4	Switch(MUTE)	CSN1005

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
S	1	Switch(MUTE)	ESN1005
M	1	Motor Unit	EXA1162
HD	1	Head Unit	EXA1163
SO	1	Solenoid(KE-250, 3033)	EXP1008